

# **Review of alternative electricity procurement processes for the provision of Delmarva Power's Standard Offer Service**

## *Task 1 – Electricity Supply Procurement Assessment*

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*Prepared for*

**The State of Delaware Public Service Commission Staff**

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# Table of Contents

<b>1</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>7</b>
1.1	STANDARD OFFER SERVICE SUPPLY PROCUREMENT PROCESS.....	7
1.2	CASE STUDIES .....	9
1.3	OPTIONS FOR DISCUSSION .....	11
<b>2</b>	<b>DELMARVA STANDARD OFFER SERVICE .....</b>	<b>12</b>
2.1	RESTRUCTURING.....	13
2.2	PROCUREMENT METHODOLOGY .....	14
2.2.1	<i>Product definition</i> .....	14
2.2.2	<i>Procurement mechanism</i> .....	16
2.2.3	<i>Timing of the procurement process</i> .....	17
2.2.4	<i>Supplier qualifications</i> .....	18
2.2.5	<i>Auction mechanics</i> .....	19
2.3	PAST PROCUREMENT PROCESSES.....	20
2.3.1	<i>Participation</i> .....	20
2.3.2	<i>SOS Auction Results</i> .....	23
2.3.3	<i>Congestion and Auction Revenue Rights</i> .....	25
2.3.4	<i>2014-2015 procurement process</i> .....	26
2.4	ASSESSMENT OF THE PROCUREMENT PROCESS FOR RSCI CUSTOMERS .....	29
2.4.1	<i>Participation level</i> .....	30
2.4.2	<i>Supply costs</i> .....	31
2.4.3	<i>Price stability</i> .....	32
2.4.4	<i>Amount of resources required to manage the supply portfolio</i> .....	33
<b>3</b>	<b>CASE STUDIES - SOS PROCUREMENT MECHANISMS IN VARIOUS JURISDICTIONS .....</b>	<b>34</b>
3.1	CONNECTICUT .....	34
3.2	DISTRICT OF COLUMBIA .....	37
3.3	ILLINOIS .....	38
3.4	MARYLAND.....	40
3.5	MASSACHUSETTS.....	42
3.6	NEW JERSEY .....	44
3.7	OHIO .....	46
3.8	PENNSYLVANIA .....	48
3.9	COMPARISON OF DPL SOS PROCUREMENTS WITH PROCESSES IN OTHER JURISDICTIONS AND KEY TAKEAWAYS.....	51
3.9.1	<i>Methodology and Format</i> .....	52
3.9.2	<i>Product</i> .....	53
3.9.3	<i>Contract term</i> .....	54
3.9.4	<i>Results</i> .....	56
<b>4</b>	<b>ECONOMIC ASSESSMENT OF ALTERNATIVE PROCUREMENT MODELS .....</b>	<b>59</b>
4.1	EVALUATION CRITERIA .....	59
4.2	OPTIONS FOR PROCUREMENT STRATEGIES.....	61
4.2.1	<i>Direct procurement from spot markets</i> .....	62
4.2.2	<i>Entering into long term contracts with generators</i> .....	62
4.2.3	<i>Owning sources of generation</i> .....	63
4.3	OPTIONS FOR COMPETITIVE PROCUREMENT DESIGN/ FORMAT .....	64
4.3.1	<i>Sealed-bid RFPs</i> .....	65
4.3.2	<i>Open auctions</i> .....	66

4.4	AUCTION/PRODUCT CHARACTERISTICS .....	68
4.5	SUGGESTED TOPICS OF DISCUSSION AT THE STAKEHOLDER WORKSHOP .....	71
4.5.1	OPTIONS FOR MODIFYING THE PROCUREMENT PROCESS.....	71
4.5.2	OPTIONS FOR CHANGING THE PROCUREMENT/ AUCTION FORMAT .....	74
4.5.3	OPTIONS FOR CHANGING THE FRS PRODUCT CHARACTERISTICS .....	74
4.5.4	LOWERING THE UNDERLYING COST OF ELECTRICITY IN THE DPL ZONE .....	74
<b>5</b>	<b>NEXT STEPS .....</b>	<b>76</b>
<b>6</b>	<b>APPENDIX – DPL’S INTEGRATED RESOURCE PLANNING (INCLUDING HISTORICAL &amp; FORECAST LOAD).....</b>	<b>78</b>
6.1	2014 IRP KEY FINDINGS.....	78
6.2	EVALUATION OF ALTERNATIVE SOS SERVICE PROCUREMENT PROCESSES UNDER THE IRP .....	79
6.3	HISTORICAL ENERGY & CAPACITY SALES.....	80
6.4	FORECASTED ENERGY AND CAPACITY NEEDS .....	81
6.4.1	<i>Baseline forecast.....</i>	<i>82</i>
6.4.2	<i>Impact of Demand-Side Management &amp; Energy Efficiency.....</i>	<i>85</i>
6.4.3	<i>Reference Case Forecast .....</i>	<i>86</i>

## Table of Figures

FIGURE 1. SUMMARY TABLE OF SOS PROCUREMENT PROCESS ACROSS DIFFERENT JURISDICTIONS.....	9
FIGURE 2. FULL REQUIREMENTS WHOLESALE SUPPLY SERVICE CHARACTERISTICS.....	15
FIGURE 3. BID BLOCK DESIGN FOR THE DPL 2015 RFP FOR FULL REQUIREMENTS WHOLESALE ELECTRIC POWER SUPPLY IN DELAWARE (RSCI CUSTOMERS) .....	16
FIGURE 4. TIMING FOR THE DPL 2015 PROCUREMENT OF FULL REQUIREMENTS WHOLESALE ELECTRIC POWER SUPPLY IN DELAWARE (RSCI CUSTOMERS) .....	17
FIGURE 5. SUMMER AND NON-SUMMER ENERGY VOLUME WEIGHTING FACTORS (RSCI CUSTOMERS).....	19
FIGURE 6. AUCTION PARTICIPATION DATA BY PROCUREMENT YEAR (ALL SERVICE TYPE CATEGORIES) .....	21
FIGURE 7. NUMBER OF APPLICANTS SUBMITTING OFFERS BY PROCUREMENT YEAR (RSCI CUSTOMERS) .....	21
FIGURE 8. HISTORICAL NUMBER OF SUPPLIERS FOR THE DPL DELAWARE RSCI LOAD .....	22
FIGURE 9. HISTORICAL SUPPLIERS FOR THE DPL DELAWARE RSCI LOAD .....	22
FIGURE 10. AVERAGE DPL COST OF SUPPLY BY SUPPLY PERIOD (RSCI CUSTOMERS) .....	24
FIGURE 11. COST STABILITY PROVIDED BY DPL'S SOS COST OF SUPPLY VERSUS THE VOLATILITY FROM WHOLESALE ENERGY MARKETS (RSCI CUSTOMERS) .....	24
FIGURE 12. ARR CREDITS FOR THE DPL ZONE PER PLANNING PERIOD (\$/MW).....	26
FIGURE 13. SUMMARY OF RESULTS FOR THE 2014-2015 RFP (RSCI CUSTOMERS) .....	27
FIGURE 14. FRS SUPPLIERS FOR THE 2015-2016 DELIVERY PERIOD (RSCI CUSTOMERS) .....	27
FIGURE 15. 2014-2015 PROCUREMENT WEIGHTED AVERAGE WINNING BID (RSCI CUSTOMERS) VERSUS THE FORECASTED DPL ZONE MARKET COSTS .....	28
FIGURE 16. SUMMARY TABLE OF SOS PROCUREMENT PROCESS ACROSS DIFFERENT JURISDICTIONS.....	34
FIGURE 17. NEW JERSEY FEBRUARY 2015 RESIDENTIAL SOS PROCUREMENT RESULTS.....	46
FIGURE 18. OHIO UTILITIES 2015 SOS PROCUREMENT RESULTS.....	48
FIGURE 19. PECO MARCH 2015 RESIDENTIAL AND SMALL COMMERCIAL SOS PROCUREMENT RESULTS.....	50
FIGURE 20. FIRST ENERGY COMPANIES APRIL 2015 RESIDENTIAL SOS PROCUREMENT RESULTS.....	51
FIGURE 21. IMPACTS OF CONTRACT TERM ON PROCUREMENT RESULTS.....	55
FIGURE 22. PROCUREMENT AUCTION RESULTS ACROSS DIFFERENT JURISDICTIONS FOR MOST RECENT AUCTIONS.....	56
FIGURE 23. SUMMARIZED EVALUATION OF PROCUREMENT STRATEGIES .....	61
FIGURE 24. SUMMARIZED EVALUATION OF AUCTION FORMATS .....	65
FIGURE 25. IMPACTS OF PRODUCT/ AUCTION CHARACTERISTICS ON CONSUMERS AND SUPPLIERS.....	69
FIGURE 26. ILLUSTRATION OF MPT AND THE EFFICIENT FRONTIER .....	73
FIGURE 27. DPL DELAWARE HISTORICAL ENERGY SALES BY REVENUES CLASSES .....	81
FIGURE 28. DPL DELAWARE HISTORICAL AND FORECASTED ENERGY REQUIREMENT AND PEAK DEMAND.....	82
FIGURE 29. HISTORICAL PERCENTAGE OF DPL RESIDENTIAL CUSTOMERS SUPPLIED UNDER THE SOS OFFERING ..	84
FIGURE 30. BASELINE PEAK DEMAND FORECAST BY RATE CLASS FOR THE DPL DELAWARE SERVICE TERRITORY ..	84
FIGURE 31. BASELINE ENERGY FORECAST BY RATE CLASS FOR THE DPL DELAWARE SERVICE TERRITORY .....	85
FIGURE 32. FORECASTED DSM ENERGY AND CAPACITY SAVINGS.....	86
FIGURE 33. REFERENCE CASE ENERGY FORECAST FOR SOS CUSTOMERS FOR THE DPL DELAWARE SERVICE TERRITORY .....	87

## Acronyms

ARR	Auction Revenue Rights
ARS	All Requirements Services
BGE	Baltimore Gas & Electric
BGS	Basic Generation Service
BRA	Base Residual Auction
BS	Basic Service
CBO	Congress Budget Office
CBP	Competitive Bidding Process
CC	Combined Cycle
CL&P	Connecticut Light & Power Company
CP	Capacity Performance
DA	Day Ahead
DPL	Delmarva Power & Light Company
DPU	Department of Public Utilities
DR	Demand Response
DSM	Demand-Side management
DSP	Default Service Program
EDC	Electric Distribution Company
EE	Energy Efficiency
EERS	Energy Efficiency Resource Standard
EOI	Expression of Interest
FRS	Full Requirements Service
FSA	Full Service Agreement
FTR	Financial Transmission Rights
HPS	Hourly Priced Service
ICC	Illinois Commerce Commission
IPA	Illinois Power Agency
IRP	Integrated Resource Plan
ISO	Independent System Operator
LEI	London Economics International
LMP	Locational Marginal Price
LSE	Load Serving Entity
MPT	Modern Portfolio Theory
NITS	Network Integration Transmission Service
PE	Potomac Edison Company
PHI	Pepco Holdings, Inc.

PLC	Peak Load Contribution
PM	Procurement Manager
PSC	Public Service Commission
PSE	Purchasing-Selling Entity
PUCO	Public Utilities Commission of Ohio
PURA	Public Utility Regulatory Authority
RARM	Reasonable Allowance for Retail Margin
REC	Renewable Energy Credit
REPSA	Renewable Energy Portfolio Standard Act
RFP	Request for Proposals
RPM	Reliability Pricing Model
RPS	Renewable Portfolio Standard
RSCI	Residential and Small Commercial & Industrial
SEU	Sustainable Energy Utility
SOS	Standard Offer Service
SREC	Solar Renewable Energy Credit
SSO	Standard Service Offer
SS	Standard Service
UI	United Illuminating Company

# 1 Executive Summary

London Economics International (“LEI”) has been retained by the staff of the Delaware Public Service Commission (“PSC” or “Commission”) to undertake a review of Delmarva Power and Light Company’s (“Delmarva” or “DPL”) current Standard Offer Service (“SOS”) supply procurement approach, consider potential alternative options for SOS procurement going forward, and present recommendations.

This report represents the first deliverable by LEI for this project. The focus of this report is to provide an assessment of the characteristics of DPL’s current SOS supply procurement approach and compare Delaware’s process with mechanisms employed in other jurisdictions. As such, this report is a first step in analyzing the merits, as well as challenges, associated with DPL’s current SOS supply procurement process, consideration of options, and identification of potential areas of improvement for purposes of stakeholder discussion.

DPL is currently the sole provider of SOS to Residential and Small Commercial & Industrial (“RSCI”) retail consumers within the state of Delaware. SOS is offered to RSCI and other retail consumers who do not elect service from competitive retail suppliers. Approximately 89% of RSCI load in the DPL service territory is served through SOS presently.

As a provider of SOS, DPL’s wholesale electricity supply procurement process is regulated by the Delaware Public Service Commission (“Commission” or “PSC”). The PSC, in a series of regulatory decisions (“Orders”) defined the competitive procurement process which debuted in 2005. Originally, DPL held sealed-bid requests for proposals (“RFPs”) to procure SOS service. The process currently relies on auctions to procure fixed-price supply covering the full requirements of RSCI SOS customers.<sup>1</sup>

Delaware legislation allows the SOS provider some flexibility for its supply procurement methodology, but since inception, DPL has procured all of its SOS supply through a competitive procurement process.

## 1.1 Standard Offer Service supply procurement process

As ordered by the PSC, DPL currently relies on a competitive procurement process, namely an auction, to procure supply for its SOS RSCI customers. The product procured is fixed-price, three-year Full Requirements Service (“FRS”) and includes energy, capacity, ancillary services, electrical losses, and other Independent System Operator (“ISO”) fees. In exchange for payment, the supplier takes on all obligations associated with a Load Serving Entity (“LSE”) and is responsible for settling the load with PJM.

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<sup>1</sup> Throughout this report, LEI will use the terms “sealed-bid RFP” (where the lowest offers fulfilling the supply requirement are selected) and “auction” (where participants are aware of and can react to their competitors’ bids) to differentiate the two procurement mechanisms.

Through its competitive procurements (comprising of two auctions each year), DPL seeks supply for the equivalent of one third of its SOS RSCI load and awards contracts for a duration of three years. The competitive procurement process relies on two auctions, so as to reduce dependency on specific market conditions at a given time. As a result, the SOS RSCI supply costs for any given year represent weighted average results of SOS procurements from three prior years (combining purchases made over six auctions).

While the laddered procurement of the FRS product to supply SOS load has merits in terms of price stability for retail consumers and ease of implementation for DPL, there are certain challenges. Given the three year contract period, the FRS product is priced by suppliers of SOS to include a risk premium for market price exposure over a multi-year period. Furthermore, the laddered procurement of contracts and three-year term results in costs of supply that do not directly track electricity spot market conditions, which is viewed as a drawback by competitive retailers and, under certain conditions, such averaging may stall consumers' interest in competitive retail offerings. Finally, procurement of the entire SOS RSCI load through a competitive process is dependent on the level of participation in the auctions. While in principle, even two bidders can reach a competitive outcome, low participation raises concerns of insufficient competition, which is theoretically linked to higher price outcomes.

Since 2005, bidder participation in the auctions has been relatively stable (at 6-7 participants offering supply).<sup>2</sup> The exception to this trend happened in the 2014-2015 procurement process. The 2014-2015 procurement process involved only three eligible suppliers submitting offers for load in the RSCI class. Some argue that this was likely due to uncertainty in the PJM capacity market rules in late 2014 / early 2015. If that was the case, then this uncertainty should be resolving itself in the near term, with FERC's June 2015 Order accepting the proposed rule changes to the capacity market to include Capacity Performance ("CP"), and the upcoming Base Residual Auction in August. Notwithstanding the capacity market rules changes, the low participation rate may also be linked to more general market risks given that suppliers must offer fixed-price supply. Recent events have also led to unprecedented market volatility (for example, winter of 2013/14 saw unusually high and volatile wholesale energy market prices due to anomalous weather).

Since the current laddered procurement approach for FRS was adopted in 2005, resulting SOS supply costs to DPL have reflected the expected dampening and delaying of impact from rising wholesale markets price variations (in recent years) and dampening and delaying the flow through of lower market prices after natural gas prices declined in 2012, in response to shale gas supply. In general, wholesale supply costs have been slowly coming down following the post-2008 reduction in economic activity, rise of relatively cheap shale gas supply, and associated fall in energy prices.

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<sup>2</sup> The number of selected winners for the RSCI class has not been publicly disclosed.

For the latest 2014-2015 procurement process, a comparison of results from the auctions with electricity market price forwards (at the time the auctions), including an allowance for risk and a reasonable margin for return, indicate that results were consistent with anticipated market conditions over the three year contract term.

## 1.2 Case Studies

LEI reviewed the SOS (or its equivalent)<sup>3</sup> procurement processes from several utilities in the PJM footprint and other deregulated jurisdictions to assess the characteristics used by each. Figure 1 presents a summary of the supply procurement processes used across different jurisdictions examined by LEI for this report.

**Figure 1. Summary table of SOS procurement process across different jurisdictions**

Jurisdiction	Product	Renewable attributes	Number of auctions per year	Delivery term	Procurement mechanism	Simultaneous process by state utilities	Participation in 2015 auctions	Results of 2015 auctions
Delaware SOS (PJM)	Full Requirements Service	Procured separately	2	3 years	Reverse auction	N/A	3 participants	\$82.18/MWh
Connecticut SS (ISO-NE)	Full Requirements Service and self-managed load	Included in FRS	4	6 months 1 year	Sealed bid	No	4-7 participants	N/A
D.C. SOS (PJM)	Full Requirements Service	Included in FRS	2	3 years	Sealed bid	N/A	3 participants	N/A
Illinois BGS (PJM)	Fixed energy blocks	Procured separately	2	Monthly over a 3 year horizon	Sealed bid	Yes	6-9 winners	N/A
Maryland SOS (PJM)	Full Requirements Service	Included in FRS	2 - 4	1 year 2 years	Sealed bid	Yes	2 participants	N/A
Massachusetts BS (ISO-NE)	Full Requirements Service	Procured separately	2	1 year	Sealed bid	No	Low	N/A
New Jersey BGS (PJM)	Full Requirements Service	Included in FRS	1	3 years	Descending clock auction	Yes	9 winners	\$80/MWh - \$100/MWh
Ohio SS (PJM)	Full Requirements Service	Procured separately	2	1 year 2 years 3 years	Descending clock auction	No	6-8 participants	\$53/MWh - \$69/MWh
Pennsylvania DS (PJM)	Full Requirements Service	Procured separately	3	6 months 1 year 2 years	Sealed bid or Descending clock auction	No	Unknown	\$60/MWh - \$77/MWh

<sup>3</sup> Default Service in Pennsylvania, Basic Service in Massachusetts, Basic Generation Service in New Jersey and Illinois, Standard Service in Ohio & Connecticut.

Most of the reviewed utilities currently rely on competitive processes<sup>4</sup> to procure the entire supply for their RSCI SOS customers, similar to DPL's procurement process. As such, the products procured through competitive bidding are mostly variations of the FRS product, and the terms for contracted supply range from six months to three years, with some utilities procuring SOS supply for multiple future terms.

LEI also observed that different auction constructs have been adopted in the jurisdictions reviewed. These include: (i) sealed-bid auctions, where the lowest bids fulfilling the supply requirement are selected, and (ii) open auction processes such as reverse auctions and descending-clock auctions, where participants are aware of and can react to their competitors' bids.

Notable exceptions to procurement of FRS include utilities in Illinois that solicit fixed-quantity, energy-only blocks. These purchases are supplemented with transactions from the spot markets as the load varies on an hourly basis. Another example of a different default load procurement program can be found in Connecticut where Eversource ("CL&P") is authorized to self-manage 20% of the load using a mix of physical and financial products.<sup>5</sup> While requiring more resources from the utility, this method is expected to yield slightly lower prices for the SOS consumers at the expense of somewhat higher volatility in the retail rates.

Other variations between jurisdictions include different contract terms, which range from six months to three years. Shorter term contracts imply lower market risks to suppliers and correspondingly lower risk premium built in the supply offers, while longer term contracts favor price stability at the expense of higher risk premiums built in the supply offers and greater deviation from the wholesale market costs (on which competitive suppliers rely).

When accepting offers, various mechanisms are used. On the one hand, sealed-bid procurement has competing suppliers submitting their best offer without knowledge of the competition. Conversely, the auction constructs allow suppliers to react to offers from competing suppliers throughout the process, which may lead to uncompetitive results if participation is limited.

Finally, some jurisdictions hold multi-utility joint procurements in an effort to reduce administrative efforts for the suppliers and increase the attractiveness of the procurement event through larger load offered for auction.

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<sup>4</sup> While utilities refer to these competitive processes as RFP processes, they do not necessarily follow sealed bid / pay as bid process; instead like DPL (which also refers to its process as an RFP process), procurement is conducted using an auction platform. We describe specific methodologies of each jurisdiction studied in Section 3.

<sup>5</sup> Final Decision. *PURA Docket 12-06-02*,  
<http://www.dpuc.state.ct.us/dockhist.nsf/8e6fc37a54110e3e852576190052b64d/1e131cb621d4643585257c0e004f6203?OpenDocument>

### 1.3 Options for discussion

In its review of DPL's RSCI SOS supply procurement process, LEI intends to review the overall procurement methodology, the auction format, and the product/auction characteristics.

Among potential procurement methods for load-following, full requirements service for retail load, three categories of procurement methods emerge, which can be used exclusively or combined with each other to create a supply portfolio:

- procurement of FRS product in an open auction or sealed-bid (pay-as-bid) auction process;
- purchasing of energy, capacity or ancillary services directly from the real time wholesale market; and
- long term contracting for output of generation resources, or building new generation resources that will provide the equivalent of FRS (the long term contract can also be bid out competitively in an auction process).

For electricity procurement processes that require competitive bidding, several different auction formats can be used, such as sealed-bid versus open auctions. There are further variations within the latter category, for example single round versus multi-round (descending clock) auctions.

While LEI does not make any recommendation for changing the current DPL SOS supply procurement process at this stage of the engagement, this report presents a review of alternative procurement methods in order to provide context for the discussions at the upcoming public workshop.

The options that LEI would like to discuss and receive feedback on from participants at the PSC procurement review proceedings can be divided into three categories:

- Options for modifying the procurement process (including direct procurement from spot markets, utilizing long term contracts, and owning generation)
- Options for changing the procurement auction/format (including sealed bid RFP versus open auctions); and
- Options for revising the product/auction characteristics (such as changing the auction timing, increasing/decreasing the frequency of auctions, increasing/decreasing the contract term, combining different terms within the same auction, changing the block size, parting out the components of FRS, procuring fixed quantities, and using a single auction clearing price)

Additionally, an alternate method of lowering the cost of electricity to customers in Delaware (not specifically related to SOS customers only) is to consider lowering the underlying cost of electricity in the DPL zone through increased transmission capacity. In addition to lowering overall wholesale market electricity prices, a reduction in congestion costs to the DPL zone would reduce risks to some SOS suppliers that are more distant from DPL's service territory.

## 2 Delmarva Standard Offer Service

DPL is an electric delivery company focusing on the transmission and distribution of electricity to its consumers. As such, DPL does not generate any electricity or own generation plants.

DPL provides SOS to approximately 300,000 residential and commercial customers in Delaware, representing a load of approximately 900 MW on average over the year.<sup>6</sup> DPL currently procures its entire SOS supply through two competitive auctions every year where potential suppliers bid on multiple blocks, each representing a certain percentage of the load (each block is equivalent to approximately 50 MW Peak Load Contribution (“PLC”)). SOS supply consists of FRS (energy, capacity, and ancillary services being the largest components) and in the case of RSCI customers, is contracted for 3 years. The PSC has prescribed a laddering of procurements, such that no single auction would drive the overall cost of SOS to consumers. Therefore, only a third of the load is auctioned off annually.

The price of the product procured through the auctions to serve RSCI SOS load has varied from year to year, primarily based on the fluctuation in wholesale market prices in the PJM market at the time the auctions were held. The ladder approach to procurement, however, has had the desired effect of smoothing out the variations in wholesale market prices. Specifically, when wholesale market prices are moving upward, the laddering has delayed the effect of wholesale price increases on SOS. On the other hand, when wholesale market prices are falling, the laddering will also delay the effect of lower wholesale market prices on consumer rates.

Bidder participation in the auctions for the RSCI category have been somewhat stable (at 6-7 bidders offering supply) historically, however participation dropped significantly in 2014-2015.<sup>7</sup> Despite no significant change in terms of auction format or underlying product, the 2014-15 auctions resulted in only three potential suppliers submitting offers for load in the RSCI class. In discussions with LEI, DPL has noted that a primary cause for such low participation was the uncertainty surrounding the proposed PJM rules for a Capacity Performance in late 2014 and early 2015 (coinciding with the December and February auctions). However, the recent order by FERC (in June 2015) accepting the proposed rule changes to the capacity market has reduced this uncertainty, and the upcoming Base Residual Auction (“BRA”) in August 2015 will help resolve further risks around the pricing of capacity in the next few years. Other market risks nevertheless remain for suppliers, as Northeastern energy markets have been volatile in recent winters, so there may also be a rising concern with increased market risk that has dissuaded some potential bidders. Generally, low bidder participation, and in turn reduced competition, can be perceived as a concern, as inadequate competition in the auctions can result in higher prices for the electricity consumers.

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<sup>6</sup> DPL. 2014 Integrated Resource Plan.

<sup>7</sup> The number for selected winners for the RSCI class has not been publicly disclosed.

The main objectives of the SOS procurement process as specified by the PSC are to procure power at least costs for the ratepayers while maintaining appropriate levels of price stability over the longer term.<sup>8</sup> While the current laddered procurement approach has been designed to reduce the effect of energy price volatility on consumer rates, the risk entailed in supplying FRS at a fixed price for a three year period (along with lower participation in the auctions) may result in higher cost of supply than alternative procurement methodologies as market conditions in PJM evolve.

## **2.1 Restructuring**

In 1999, the Delaware General Assembly passed House Bill 10 (also known as the “Electric Utility Restructuring Act of 1999”), which resulted in restructuring of the electric industry within the state. While the generation, transmission and distribution of electricity were previously regulated by the PSC, House Bill 10 was designed to encourage competition between electricity suppliers at the wholesale level. The electric generation sector became deregulated and generators became part of the wholesale markets administered by PJM.

In 1999, the PSC approved electricity rates effective through the restructuring transition period (ending in September 2003), after which it approved rates to be in effect until May 2006.

In 2004, the PSC established the requirement for DPL to procure SOS supply through a competitive auction process that would result in multiple supplier contracts. On October 11, 2005, the Commission issued Order 6746 detailing the process by which DPL, as the SOS provider, would procure electric supply from the PJM wholesale markets. Further Orders have since then refined the procurement process. In December 2005 and January 2006, DPL utilized a competitive sealed-bid RFP process to procure supply for the fixed-price SOS services beginning in May 2006. This first procurement offered one-, two- and three-year contracts to initiate ladderling.

With the regulated rates in the transition period expiring in May 2006 and residential customers facing a rate increase, on April 6, 2006, the Delaware General Assembly passed House Bill 6 (also known as the “Electric Utility Retail Consumer Supply Act of 2006”). The legislation declared that DPL would become the SOS provider and would be required to file an Integrated Resource Plan (“IRP”) every two years, along with conducting a long-term solicitation for electricity supply in Delaware.<sup>9</sup>

As part of its IRP process, DPL would have to explore all reasonable short- and long-term procurement and Demand-Side Management (“DSM”) strategies, whether or not a particular

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<sup>8</sup> Delaware PSC Order 6746, 2005.

<sup>9</sup> Following the RFP for the construction of new generation in Delaware, Delmarva received approval to enter into a long-term contract with what was to become NRG’s Bluewater Wind offshore generation project. However, NRG later withdrew from the contract.

strategy is ultimately recommended. House Bill 6 also set limits on the procurement of supply by mandating that at least 30% of supply come from the competitive marketplace (via bids or the auction process). In order to meet its electric supply requirements, the legislation also offered the SOS providers the ability, subject to the approval of the Commission, to:

- enter into short- and long-term contracts for the procurement of power necessary to serve their customers;
- own and operate facilities for the generation of electric power;
- build generation and transmission facilities (subject to any other requirement in sections of the Delaware Code regarding siting and other issues);
- make investment in demand-side resources; and
- take any other Commission-approved actions to diversify its retail load.

As a consequence of House Bill 6, and subject to PSC approval, DPL has significant statutory flexibility to select the method for procuring supply for its SOS customers.

## **2.2 Procurement methodology**

Since the beginning of its fixed price SOS service, DPL has used competitive processes to procure the full requirements of eligible customers. While there have been some modifications since the first RFP in 2005 (such as the removal of requirement for suppliers to provide RECs<sup>10</sup> and switching to a reverse auction mechanism<sup>11</sup>), the core process of procuring FRS from suppliers for the entire RSCI SOS through solicitations twice a year has not been revised.

### **2.2.1 Product definition**

Full requirements wholesale supply service (as shown in Figure 2) includes energy, capacity, ancillary services, and other load-related ISO fees, as well as electrical losses. FRS excludes renewable energy obligations (following the PSC's 2008 Order 7432) and Network Integration Transmission Service ("NITS"). As suppliers effectively take on the responsibilities of a LSE for the load they serve, all services must be delivered to the DPL service territory.

The supply requirements for RSCI customers are bid out as one group. *Medium General Service - Secondary* customers form a second group, *Large General Service - Secondary* customers a third group, and non-electing<sup>12</sup> *General Service - Primary* customers comprise a fourth group.

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<sup>10</sup> Delaware PSC Order 7432, 2008.

<sup>11</sup> Delaware PSC Order 7461, 2008.

<sup>12</sup> Customers from the GS-P category may elect an Hourly Priced Service ("HPS") instead of the fixed-price SOS, which is based on the PJM wholesale market prices for power.

**Figure 2. Full requirements wholesale supply service characteristics**

Full requirements wholesale supply service	
Includes	Excludes
<ul style="list-style-type: none"><li>· Energy</li><li>· Capacity</li><li>· Ancillary Services</li><li>· Other load-related ISO fees</li><li>· Losses</li></ul>	<ul style="list-style-type: none"><li>· Renewable Energy Obligations</li><li>· Network Integration Transmission Service</li></ul>

Source: Delmarva Power, 2014-2015 RFP for full requirements wholesale electric power supply in Delaware

The load pattern for each group is quite different and entails a different risk profile for the suppliers.<sup>13</sup> Furthermore, as discussed in the Appendix (Section 6.4), different groups have different migration rates to competitive suppliers, with 89% of residential load currently provided under fixed price SOS, while 82% of non-residential load currently provided by the competitive suppliers. For these reasons, the load for each group is procured separately in the competitive solicitations.

To provide rate stability for RSCI customers, the Commission determined that DPL must annually procure one third of the load under three-year contracts (described as a “laddered” approach).<sup>14</sup> Thus, each year, new three-year contracts for a third of the load are offered in order to replace the expiring one.

The load within each auction and for each contract term is further divided into bid blocks. Each bid block represents a specific percentage of the Peak Load Contribution (“PLC”) of a customer category to the DPL Delaware peak load. The percentage is selected such that each bid block represents approximately 50 MW of PLC. As such, suppliers of FRS have an obligation stated as a specific percentage of DPL retail load for a specific service type. Consequently, full service encompasses any changes in the customers’ demand over the contracted term.

Figure 3 presents the bid block design that was included in the DPL 2014-2015 RFP/auction for full requirement wholesale electric power supply in Delaware. The total PLC of the RSCI class with respect to the DPL Delaware load is divided into blocks. Given the laddered approach, one third of the load requirement (divided into 6 blocks) is auctioned each year. As such, a total of 18 blocks are auctioned over a three year period. This results in each block representing one eighteenth (5.56%) of the RSCI PLC, or approximately 45.6 MW PLC at the time the 2014-2015 RFP document was issued (the MW amount has since evolved). The blocks are further divided

<sup>13</sup> Residential load peak more in the evening and have a relatively low load factor. Commercial loads tend to be more even during regular business hours, while industrial load tend to run continuously and have a generally higher load factor.

<sup>14</sup> Delaware PSC Order 6746, 2005.

into two tranches – effectively two different auction days (as discussed in Section 2.2.3 below), with a third tranche reserved, should any quantity bid into the first two auctions go unfulfilled.

**Figure 3. Bid block design for the DPL 2015 RFP for full requirements wholesale electric power supply in Delaware (RSCI customers)**

Residential & small commercial fixed price SOS	Percentage	Approximate quantity (MW)
Total DPL Delaware PLC	100.00%	821.1
2014-2015 RFP supply requirement	33.33%	273.7
Block size	5.56%	45.6
<b>Total number of blocks</b>		<b>6</b>
Tranche 1 Blocks		3
Tranche 2 blocks		3

Source: Delmarva Power, 2014-2015 RFP for full requirements wholesale electric power supply in Delaware

## 2.2.2 Procurement mechanism

Originally, the competitive procurement process used a simple sealed-bid RFP, where potential suppliers submitted offers for any number of blocks, without knowledge of competing offers from other suppliers. In 2008, the SOS procurement format was changed to a reverse auction mechanism. DPL asserted, and the PSC agreed,<sup>15</sup> that the auction mechanism would provide transparent price feedback on the prevailing lowest price and would stimulate more aggressive bidding and improved competition among suppliers. The PSC further stated that it is generally accepted that increased competition often results in better prices for customers.<sup>16</sup>

Under the reverse auction mechanism, the independent technical monitoring consultant and World Energy along with PSC Staff set a starting price for each block. Bidders are then allowed to make and revise their offers for a set period of time. A separate auction is held for each block<sup>17</sup>. The auctions for each block open simultaneously, and suppliers may submit offers on as many blocks as they prefer. All participants having submitted an offer are able to view the current low bid over the course of the auction and may submit a lower offer if they so desire. After 30 minutes, the auction closes for the first block, and the supplier having submitted the

<sup>15</sup> Delaware PSC Order 7461, 2008.

<sup>16</sup> Delaware PSC Order 7461, 2008.

<sup>17</sup> The DPL reverse auction is different from the descending-clock format, where the auction is conducted simultaneously for all blocks and results in a single clearing price. Both auction formats are discussed further in section 4.3.2

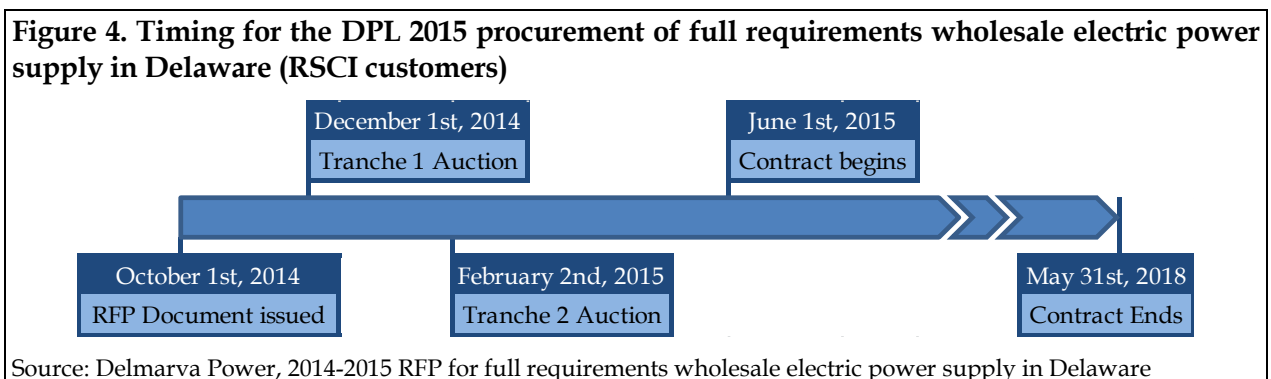
lowest offer is declared the winner. Subsequent blocks close every 15 minutes thereafter. As the auction for each block concludes, all suppliers participating in the auction are able to see the winning bid.

For each bid block offered in the auction, the winning supplier is paid its winning offer prices (by season) as entered and submitted into the World Energy auction platform. The prices are paid by service type by season and do not change over the length of the contract term. Following the end of the auction, the successful suppliers and DPL must execute a Transaction Confirmation Letter. The executed transactions are contingent on the Commission<sup>18</sup> and any necessary FERC approvals.

### 2.2.3 Timing of the procurement process

The selection of offers by DPL in the full requirements wholesale service auction process is conducted through multiple auctions held at separate points in time. The process allows for up to three auctions per year to fulfill DPL's annual target procurement amounts,<sup>19</sup> but is designed such that the entire requested amount of supply is acquired in two auctions. The multi-auction design involving bidding at two different times within a procurement year allows for a distribution of risk, as market conditions may change (for the better or worse) between the auctions. The third auction is reserved for use only if DPL requests go unfulfilled in the prior two auctions (which has never been the case so far).

Auctions typically take place in the months of November/December and February, preceding the beginning date of the contractual arrangements (which is June 1<sup>st</sup>). This timing ensures that winning suppliers can participate in the Auction Revenue Rights ("ARR") nomination process which opens in early March each year. The 36-month contract term runs from June 1<sup>st</sup> of Year 1 until May 31<sup>st</sup> of Year 4. As such, Figure 4 presents the timing associated with the 2014-2015 procurement auction process.



<sup>18</sup> The transactions will be deemed approved by the Delaware Commission unless the Commission orders otherwise within two days following the execution of the transactions.

<sup>19</sup> In the case of RSCI load, DPL's annual requirements represents one third of the total SOS load.

It is noteworthy that at the time the auctions are held, the results from the PJM capacity market Base Residual Auctions (“BRA”) are already known for the entire period covered. Therefore, the costs associated with the capacity component are largely known to potential suppliers when they submit their fixed-price offers for FRS.<sup>20</sup> There was an exception, however, for the 2014-2015 procurement process, which is discussed further in Section 2.3.4.

Pursuant to Order 7053 in Docket 04-391, the Commission reserves the right, only in the event of extraordinary circumstances, to defer a scheduled auction to a later date or to modify (with five business days’ notice) the bidding terms to require all one-year bids or a percentage of one-year bids combined with three-year bids. To date, the Commission has never exercised that right.

#### **2.2.4 Supplier qualifications**

To be eligible for placing an offer in the auction, an applicant must satisfy a number of criteria in a timely and complete fashion. There is no rule banning DPL affiliates from participating in the auctions. Specifically, the applicant must:

- be a registered Purchasing-Selling Entity (“PSE”) with NERC/ReliabilityFirst Corporation;
- submit an Expression of Interest (“EOI”) form;
- execute a Confidentiality Agreement;
- certify that it is a member of the PJM Interconnection LLC, and qualified as a market buyer and market seller in good standing;
- certify that it has been authorized by FERC to make sales of energy, capacity and ancillary services at market based rates;
- certify that its (or its guarantor’s) unsecured senior long-term debt is currently rated by Standard & Poor’s Ratings Group, Fitch Investor Services or Moody’s Investor Services; and
- submit the credit application and associated financial information requested in Section 3.5 of the RFP document.

This list of requirements is not out of the ordinary and it is unlikely that a serious potential supplier would be unable to meet the above stated eligibility requirements. In a conversation with LEI, DPL indicated that qualification requirements have never been a factor for potential suppliers failing to qualify to offer in the auctions.

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<sup>20</sup> Results from capacity reconfiguration auctions will alter the cost to SOS suppliers for a particular period, although the amount of capacity transacted in these auctions is typically low compared to the BRA.

## 2.2.5 Auction mechanics

The auctions are held separately by tranche, service type and bid block. Supply offers for each bid block are in \$/MWh, and there is no limit on the number of bids a supplier can submit, or blocks a supplier can service. Offers are at the retail-meter level (hence suppliers are responsible for all losses).

Bidders are required to provide price offers that must distinguish between summer energy and non-summer energy.<sup>21</sup> The two separate offer prices for the summer and winter periods are designed to lower risks to suppliers. If the actual load serviced by a supplier for a given period (summer or winter) differs from the forecasted value, the difference will be priced at the level offered by the supplier for that particular period. For instance, if load during a particular summer period over the course of a 3-year contract is higher than the forecasted value, the supplier will earn the price it offered for summer periods on the incremental load (as opposed to getting an average annual price).

DPL provides summer and non-summer factors that represent DPL's estimates of the portion of the specified service type load within the specified term and season, based on historical distribution load data. As an example, Figure 5 illustrates the summer and non-summer volume weighting factors as a percentage of the total energy usage for the RSCI service type, as provided in the 2014-2015 RFP for full requirements wholesale electric power supply in Delaware.

**Figure 5. Summer and Non-Summer energy volume weighting factors (RSCI customers)**

Volume Weighting Factors	Summer	Non-Summer
Residential & small commercial Service Type	37.44%	62.56%

Source: Delmarva Power, 2014-2015 RFP for full requirements wholesale electric power supply in Delaware

For purposes of auction clearing, however, the load weighted average annual bid price is the single parameter that is used to compare all offers within each auction.

During and after the auctions, an independent Technical Monitoring Consultant observes the auction, reviews the results, and identifies any potential attempts to exercise market power.<sup>22</sup>

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<sup>21</sup> The DPL summer period ranges from May 1<sup>st</sup> to August 31<sup>st</sup>, while the non-summer period ranges from September 1<sup>st</sup> to April 30<sup>th</sup>.

<sup>22</sup> The same Technical Monitoring Consultant also monitors the process leading up to the auction.

## **2.3 Past procurement processes**

The first competitive RFP/auction for electricity supply was held by DPL in 2005-2006. At the time, DPL sought FRS for its entire RSCI SOS load for 13-month, 25-month and 37-month terms (one third of the RSCI SOS load was contracted for each of the three contract terms) to initiate laddering.

Every year thereafter, DPL has sought electricity suppliers to cover one third of the RSCI SOS load as previous contracts expired. As mentioned earlier, bidder participation in the procurement processes has been somewhat stable, with the exception of 2014-2015 auctions.

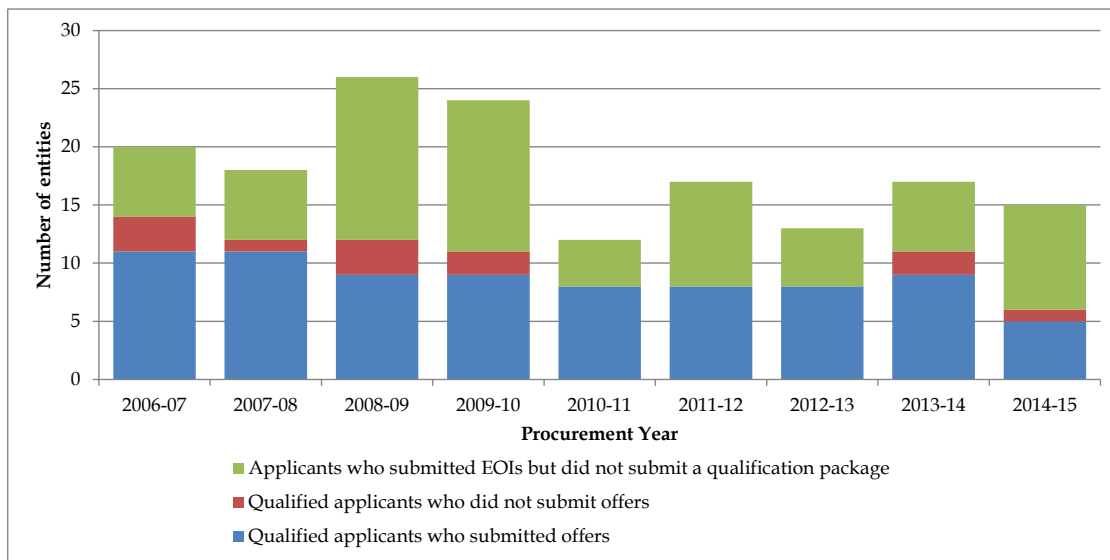
The number of suppliers that served load in the RSCI category for specific delivery periods has averaged between 6 and 7, with the load being relatively evenly split between suppliers. The 2015-2016 delivery is an exception however, with a significant portion of the load being served by one supplier (Exelon). SOS suppliers have been mostly energy marketing firms, with only three suppliers owning generation, one in Delaware (NRG), and two outside of Delaware (Exelon and Next Era).

The laddered procurement approach has achieved the desired effect of smoothing out the variations in wholesale market prices while delaying the effect of price increases or decreases on consumer rates. An analysis of the latest 2014-2015 procurement auctions confirms that results are generally consistent with the forecasted wholesale market prices over the contract term, plus a risk premium and reasonable profit margin.

### **2.3.1 Participation**

Figure 6 presents the historical level of participation in DPL RFPs for all service types. As can be seen from the data, there is a decline in the number of participants in recent years culminating with only five participants submitting supply offers in the 2014-2015 procurement year. It is noteworthy that many of the potential suppliers who submit Expression of Interest (“EOI”) forms do not follow through with a qualification package. DPL has confirmed to LEI that this is indeed the case, as opposed to interested parties not succeeding in meeting the qualification requirements.

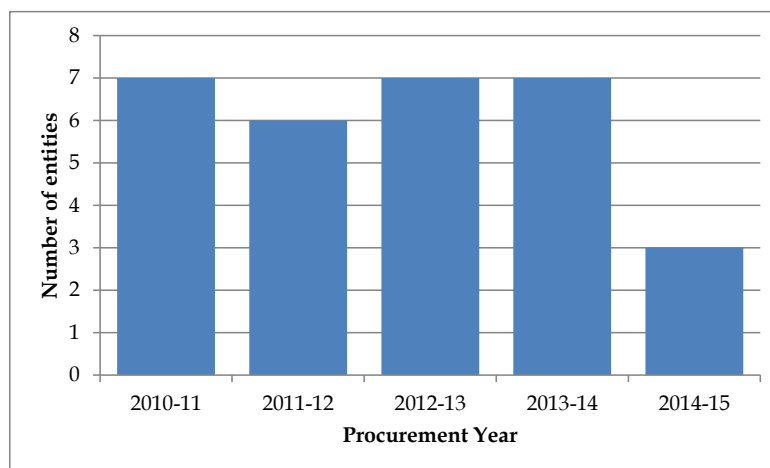
**Figure 6. Auction participation data by procurement year (all service type categories)**



Source: DPL RFP Technical Monitoring Consultant reports

As shown in Figure 7, the number of auction participants in the RSCI category (as compared to Figure 6 which showed data for all service types) was stable at 6-7 entities, with the exception of 2014-15, where only three applicants submitted offers. DPL has indicated in a conversation with LEI that the lower level of participation in the 2014-2015 auctions is largely due to uncertainty surrounding the PJM capacity market rules.

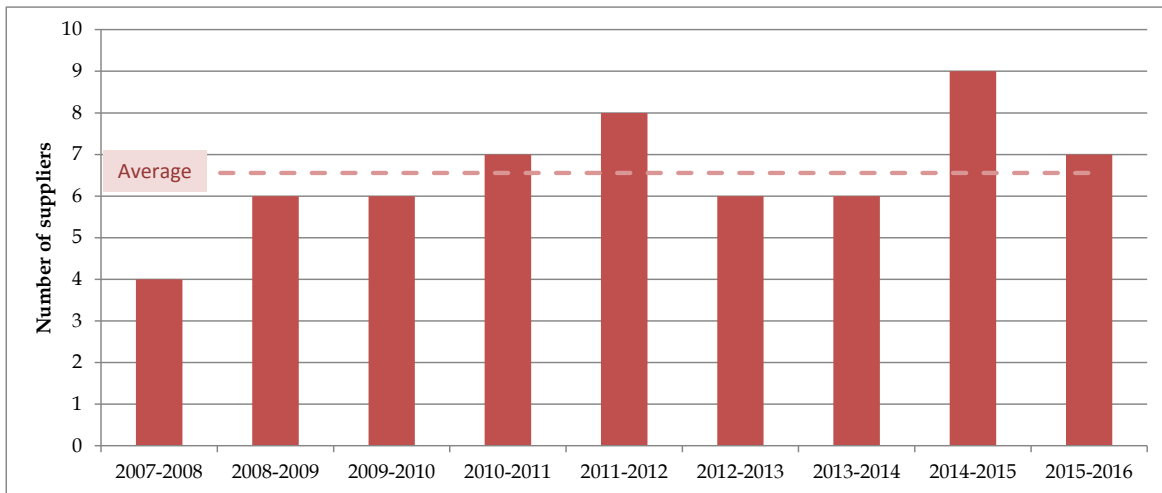
**Figure 7. Number of applicants submitting offers by procurement year (RSCI customers)**



Source: DPL RFP Technical Monitoring Consultant reports. Note: RSCI-only data not available prior to 2010-11.

For all delivery periods to date, the RCSI load has been served in some periods by as few as four different suppliers and as many as nine, but the number of suppliers for 2015-2016 delivery period is relatively consistent with the number from recent years as it includes winners from the last three procurement cycles.

**Figure 8. Historical number of suppliers for the DPL Delaware RSCI load**



Source: DPL RFP Technical Monitoring Consultant reports.

Figure 9 lists the 11 different suppliers that have served RSCI load at one time or another since 2006. Historically the load has been relatively evenly distributed between the different suppliers, as can be seen by the number of suppliers by period in Figure 8. The 2015-2016 delivery period is an exception and is further discussed in Section 2.3.4.

**Figure 9. Historical suppliers for the DPL Delaware RSCI load**

DPL Full Service Requirements Suppliers	Supplier category
Conectiv Energy Supply	Generation owner
Constellation	Generation owner
DTE Energy Trading	Energy marketer
Energy America	Energy marketer
Exelon	Generation owner
Hess Corporation	Energy marketer
Macquarie Energy	Energy marketer
NextEra	Generation owner
NRG	Generation owner
PPL EnergyPlus, LLC	Energy marketer
Shell	Energy marketer

It is noteworthy that the majority of these suppliers are energy marketing and trading firms who do not own significant generation in the PJM East region. The only suppliers that currently own actual generation are: (i) Exelon (which merged with Constellation in 2012);<sup>23</sup> (ii) NextEra;

<sup>23</sup> Exelon has since announced a potential merger with Pepco Holdings Inc., which is DPL's parent company.

and (iii) NRG. Furthermore, among those suppliers that own generation, only NRG owns generation in Delaware<sup>24</sup> (in addition to owning other generation throughout the PJM footprint). Exelon owns significant generation in Maryland, Pennsylvania, and Illinois while NextEra owns generation in Pennsylvania and New Jersey.

Separately, Calpine Corporation (“Calpine”) is by far the largest owner of generation in Delaware with over 2,800 MW of installed capacity (including the new Garrison Energy Center CCGT). While it has never been one of the suppliers of SOS to DPL, it is interesting to note that in a recent development, on July 20, 2015, Calpine announced an agreement to acquire the retail electric business of Champion Energy Holdings,<sup>25</sup> a joint venture of Crane Holding Companies (75%) and EDF Trading North America (25%).<sup>26</sup>

### 2.3.2 SOS Auction Results

Figure 10 shows the supply costs (in \$/MWh) to DPL for RSCI customers resulting from the annual RFPs/auctions. Horizontal solid lines represent results from the auctions (supply cost in \$/MWh for the duration of the three-year contracts) while the dotted line illustrates the annual cost of SOS supply for DPL.

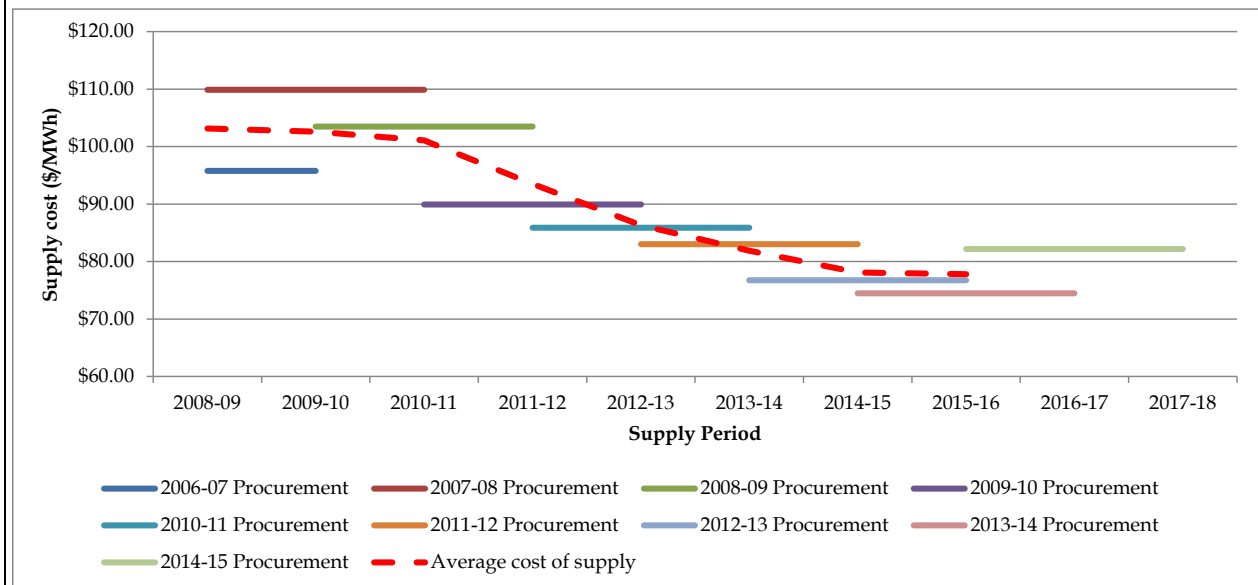
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<sup>24</sup> NRG owns the 460 MW Indian River Generation Station coal plant and the 112 MW Dover Energy gas-fired plant.

<sup>25</sup> Competitive retail suppliers share many of the same business characteristics with SOS suppliers. Calpine’s entry into the retail market may hence indicate a potential interest in the future to participate in auctions for SOS supply in Delaware.

<sup>26</sup> In aftermath of the announcement, UBS research analysts noted that “the deal makes strategic sense to complement Calpine’s physical fleet, having previously avoided entering the retail space. The deal is motivated by a desire to contract closer to end-use customers, with less wholesale electric liquidity for its largely natural gas generating fleet within its home markets of California, Texas, and PJM. As a holder of physical assets, CPN should be in a position to improve margins (and reduce risks) over a non-physical power marketer.” Source: UBS Global Research. ‘Calpine Corporation – Getting Closer to the Customer.’ July 21, 2015.

**Figure 10. Average DPL cost of supply by supply period (RSCI customers)**

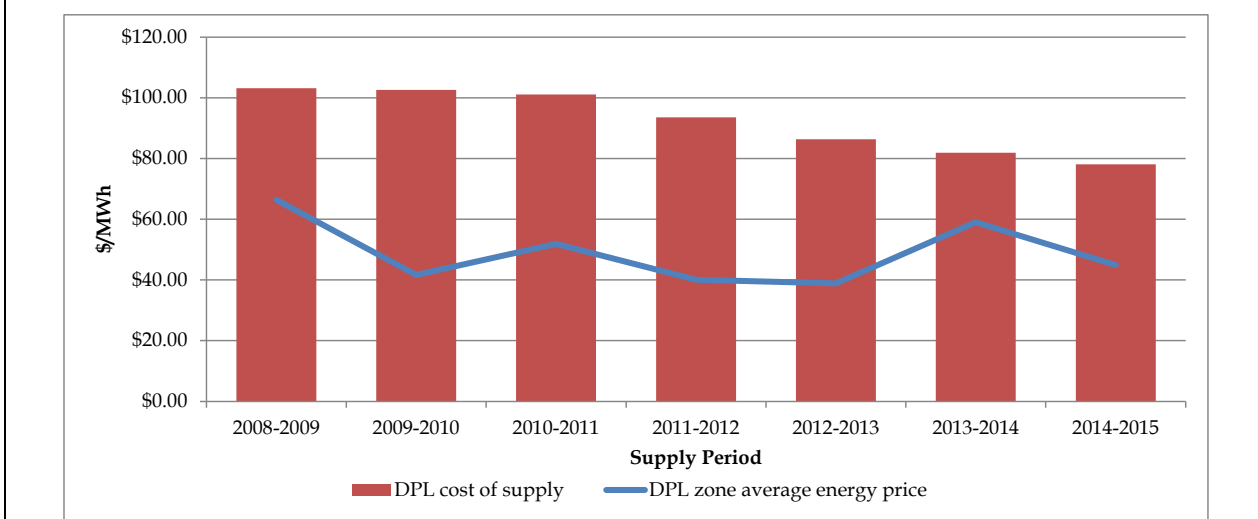


Source: DPL RFP Technical Monitoring Consultant reports

Since contracts resulting from each RFP last for a period of 3 years and are designed to supply one third of the load, the average supply cost for each annual delivery period (June 1<sup>st</sup> to May 31<sup>st</sup>) is a function of the results from the three previous procurement processes.

Figure 11 illustrates the FRS annual supply cost for DPL when compared to actual PJM wholesale energy markets prices. While the FRS product includes several components, energy is the largest and most volatile component. This figure illustrates the relative stability of supply costs when compared to the volatility of energy spot prices.

**Figure 11. Cost stability provided by DPL's SOS cost of supply versus the volatility from wholesale energy markets (RSCI customers)**



DPL's laddered procurement process has had the expected effect of dampening and delaying the impact of price variations in wholesale markets, with supply costs coming down slowly (with a delayed effect) following the post-2008 reduction in economic activity, rise of the shale gas and associated fall in power prices.

DPL Delaware customers have also been shielded from the sharp increase in DPL zone energy and capacity prices for the 2013-2014 period. While the supply prices associated with the 2014-2015 procurement period will replace similar prices from the 2011-2012 procurement period, and therefore there will be limited cost impacts to consumers, the 2014-2015 prices are higher than the prices that resulted in the previous two procurements (in 2012-2013 and 2013-2014).

### **2.3.3 Congestion and Auction Revenue Rights**

Auction Revenue Rights ("ARR") are allocated annually to firm transmission service customers and entitle the holder to receive revenues (or charges) from the annual Financial Transmission Rights ("FTR") auction. The FTR auction allows bidders to obtain financial instruments (the FTRs) which provide revenues (or charges) base on the hourly Day Ahead ("DA") congestion price difference across the requested path.

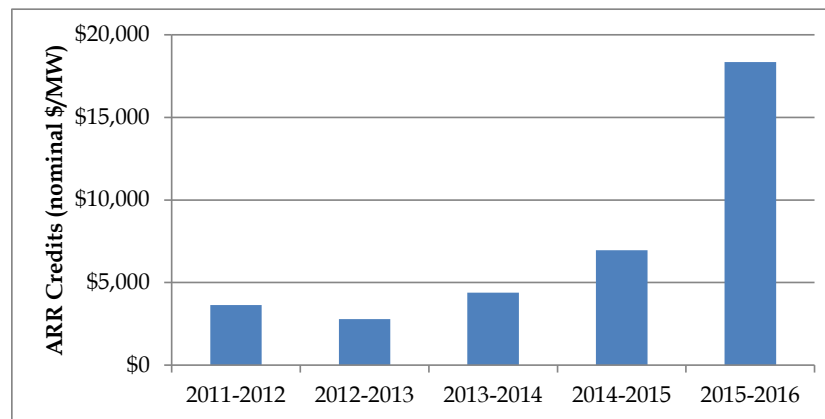
Winning FRS suppliers are entitled to DPL's rights to Auction Revenue Rights ("ARR") up to the share of load they serve. In other words, the total MW of ARRs requested by a supplier cannot exceed its share of the peak load. ARRs are entitlements allocated annually to firm transmission service customers that can then be converted to FTRs, or which allow the holder to receive an allocation of the revenues (or charges) from the annual FTR auction.

These rights allow the holders to nominate ARRs sinking in the DPL zone.

- In stage 1 of the ARR allocation process, allocation is from sources which correspond to historical generation resources serving the DPL zone; and
- In stage 2 of the allocation process, allocation is from any other source, if sufficient transmission capacity on the requested path remains.

If the amount of ARRs requested along a particular interface surpasses the available transmission capacity, the requested amounts are prorated among the various requestors. As a result, suppliers are able to hedge part or all (if they nominated and were awarded all their ARRs) of the congestion risk in the energy markets. Figure 12 presents the average credits (in \$/MW) received by ARR holders for the DPL zone.

**Figure 12. ARR credits for the DPL zone per planning period (\$/MW)**



Source: PJM

The increasing value of ARR credits over the recent years reflect the increase in congestion costs in the DPL zone, while the 2015-2016 value reflects the results from the FTR auction which represents the expected congestion in the DPL zone for that planning period.

#### **2.3.4 2014-2015 procurement process**

The latest procurement process was held by DPL in December 2014 (tranche 1 auction) and February 2015 (tranche 2 auction) for deliveries (to RSCI customers) starting June 1<sup>st</sup>, 2015 until May 31<sup>st</sup>, 2018.

Out of the 15 entities that submitted EOI documents, only five entities submitted offers. It is noteworthy however that only two of those participants submitted offers in the RSCI customers category during the December 2015 auction and three participants submitted offers during February 2015 auction.

One possible cause for the decrease in participation in the latest DPL auction is the uncertainty over the PJM capacity market regulations. The new rules, which were not finalized at the time of the auction in late 2014 and early 2015,<sup>27</sup> are designed to provide greater assurance of delivery of energy and reserves during emergency conditions by creating a new capacity product called the Capacity Performance ("CP").

The redesign introduces charges for poor performance and credits for superior performance. While the changes will be implemented for the 2018-19 delivery year, a transition mechanism will be in place for the 2016-17 and 2017-18 delivery years. So while the BRA results were known, PJM's proposed exceptional transition auctions would procure the new CP resources for respectively 60% and 70% of the total capacity requirement for the 2016/2017 and 2017/2018

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<sup>27</sup> FERC has since issued an order accepting in large part the proposed Capacity Performance rules. <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13899457>

periods. The outcome of these transition auctions could have a significant effect on the cost of capacity to SOS suppliers. Therefore, the uncertainty surrounding the new rules may have discouraged some suppliers from offering fixed-price FRS in the 2014-2015 SOS auctions (which cover the 2015-16, 2016-17 and 2017-18 capacity delivery periods).

As a result, only two companies won blocks during the two auctions: (i) DTE Energy Trading, Inc.; and (ii) Exelon Generation Company, LLC.

**Figure 13. Summary of results for the 2014-2015 RFP (RSCI customers)**

Winning Suppliers	DTE Energy Trading, Inc. Exelon Generation Company, LLC
Weighted average winning bid price	\$82.18/MWh

Source: DPL RFP Technical Monitoring Consultant report for the 2014-2015 RFP

While DTE is an energy marketing and trading firm, Exelon owns generation in Maryland, Pennsylvania and Illinois, but not in Delaware. The resulting weighted average winning bid price for the RSCI service type is \$82.18/MWh, which represents an increase of 10% over the prior year's auctions that resulted in an average winning bid price of \$74.48/MWh.

Figure 14 presents the resulting list of seven suppliers for the RSCI service type (by percentage of load served) for the 2015-2016 delivery period. These quantities include blocks won in the previous two years' auctions for deliveries during the 2015-2016 period. It is noteworthy for the 2015-2016 delivery period that one player, Exelon, will serve a significant percentage (44.4%) of the RSCI load as a result of winning blocks in the past three procurement processes.

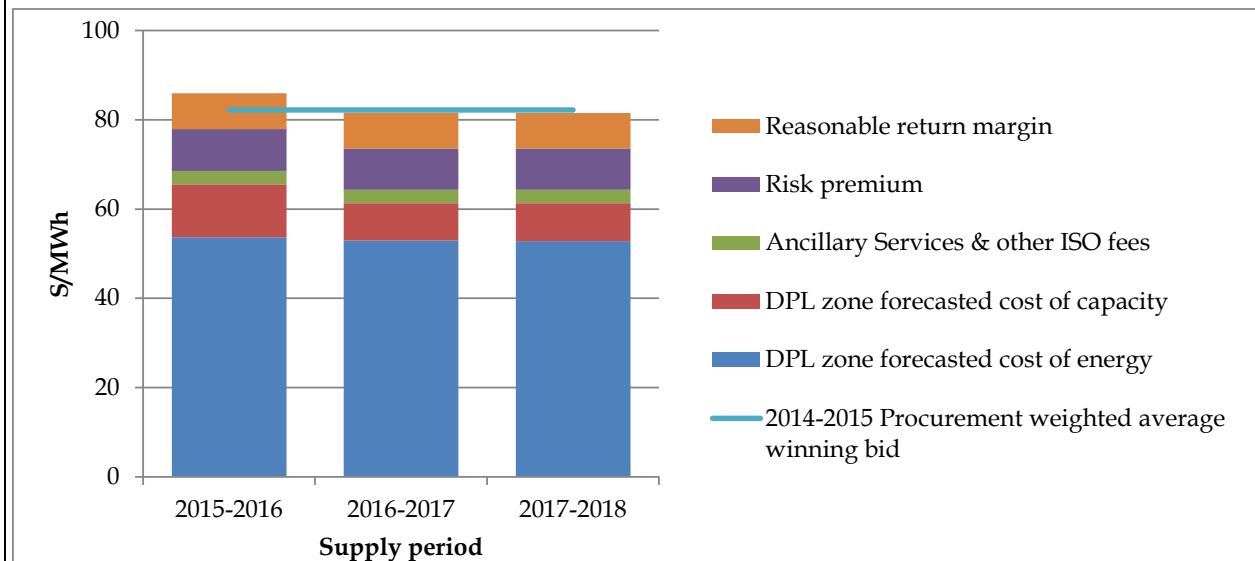
**Figure 14. FRS suppliers for the 2015-2016 delivery period (RSCI customers)**

Supplier	% of load served
DTE Energy Trading	11.1 %
Energy America	11.1 %
Exelon	44.4 %
Macquarie	11.1 %
NextEra	5.6 %
NRG	5.6 %
Shell	11.1 %
<b>Total</b>	<b>100.0%</b>

Source: DPL

Finally, Figure 15 presents the weighted average results from the 2014-2015 procurement auctions (\$82.18/MWh) relative to the cost of supply (from the bidders' perspective) at the time of the auctions.

**Figure 15. 2014-2015 Procurement weighted average winning bid (RSCI customers) versus the forecasted DPL zone market costs**



Source: SNL, LEI calculations

To estimate the cost of supply, LEI summed the anticipated cost to suppliers from energy, capacity and ancillary services markets, as well as other ISO fees. For purposes of comparability and illustration, LEI also included a notional markup for risk and profit margin. As can be seen from the figure, results from the auction are consistent with the expected market conditions over the next three years.

LEI relied on Eastern Hub energy price forwards as of the dates of each tranche auction, which average \$51.48/MWh (on-peak) over the three-year delivery period. Energy costs are calculated by weighting the energy prices with the forecasted DPL RSCI SOS customers load profile. Capacity costs are known from the results of previous BRAs, although these could change as a result of transitional period adjustments and procurement of some percent of the new product. Based on BRAs concluded to date, the cost of capacity for DPL zone customers is expected to average \$9.57/MWh over the 3-year period.<sup>28</sup>

For illustration purposes, LEI further considered a risk premium adder averaging \$9/MWh over the delivery period. In order to estimate that figure, LEI compared, for recent years,

<sup>28</sup> The methodology for calculating the cost of capacity to consumers is sourced from the Monitoring Analytics (PJM's market monitor) State of the Market reports, available on their website. <[http://www.monitoringanalytics.com/reports/PJM\\_State\\_of\\_the\\_Market/2015.shtml](http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2015.shtml)>

forward expectations for energy prices in December and February (i.e. the time of the year DPL auctions are typically held) to actual PJM wholesale energy prices. LEI evaluated the volatility of market prices by calculating the deviation of actual prices from expectations looking out one, two or three years out. For example, LEI calculated the deviation from February 2012 forwards looking out for the 2012-2013, 2013-2014 and 2014-2015 periods to the actual market prices for those same periods. The average of deviations, expressed as a percentage of the forward energy price value, represents the risk premium. Finally, LEI applied the risk premium (expressed as a percentage) to the expected cost of energy over the 2015-2018 delivery period to obtain the \$9/MWh risk premium value used in Figure 15.

In addition, LEI added a reasonable gross return margin that a supplier may require. Once again for illustration purposes, LEI used \$8/MWh as the reasonable gross return margin, which is a representative value from a review of gross margins published by retail marketers across various jurisdictions.<sup>29,30,31</sup>

## **2.4 Assessment of the procurement process for RSCI customers**

The current legislation requires that DPL procure a minimum of 30% of its SOS supply from the competitive marketplace through RFPs/auctions, while the remainder can come from the marketplace or through other procurement means, such as short- or long-term bilateral contracts. However, DPL currently relies entirely on an auction process to procure its entire supply requirement for SOS customers as a full requirements wholesale supply service. For RSCI customers, as discussed earlier, one third of the load is auctioned annually in blocks of approximately 50 MW of PLC in two separate auctions per year, resulting in laddered 3-year contracts.

The main objectives of the procurement process, as stated by the Commission in the initial Order defining the process,<sup>32</sup> is to procure power at the lowest costs for the ratepayers while maintaining appropriate levels of price stability over the longer term. The exact definition of “appropriate” in these circumstances is probably the most important factor to consider when assessing different procurement methodologies, product definitions or auction formats.

The current approach has its share of strengths and weaknesses (and some of these have been noted in previous reports from consultants monitoring the procurement processes or

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<sup>29</sup> Just Energy, 2014 annual report.

<[http://www.justenergygroup.com/Portals/0/Users/009/09/9/6372\\_JustEnergy\\_AR2014\\_final.pdf](http://www.justenergygroup.com/Portals/0/Users/009/09/9/6372_JustEnergy_AR2014_final.pdf)>

<sup>30</sup> LEI, Regulated Rate Tariff and Energy Price Settings Plans – Generic Proceeding, Alberta Utilities Commission Proceeding 2941, Application 1610120-1; Exhibit 30.03, DERS application. Exhibit 31.01, EEC application, PDF pages 98-134. Exhibit 32.01, EEA application, PDF pages 198-234.

<sup>31</sup> UBS Investment Research, *Dissecting Texas Electric Retail Margins*, November 2012.

<sup>32</sup> Delaware PSC Order 6746, 2005.

commenting on the IRP). These strengths and weaknesses can be categorized as affecting four separate metrics: (i) participation level; (ii) supply costs; (iii) price stability; and (iv) amount of resources required to manage the supply portfolio. LEI elaborates upon each in sub-sections below.

### **2.4.1 Participation level**

In order to attract participants to the auction, potential suppliers need to be assured that no participant will be given undue advantages and that the rules for selecting winning bids are clear. The current DPL procurement approach is transparent, auction documents are issued in advance describing the rules and requirements, all prospective suppliers are competing for the same product (although there are separate prices for each block), and winners sign the same agreement. Furthermore, a single objective criterion is used to determine the winners, that criterion being the offered price. The full requirements approach is also used in other PJM jurisdictions, and as such, potential suppliers are familiar with it. These factors should encourage participation in the DPL SOS supply solicitations. Furthermore, the independent Technical Monitoring Consultant monitors the process to prevent potential harmful gaming behavior, such as tacit collusion or attempts to exercise market power.<sup>33</sup>

Conversely, uncertainty over regulatory or market risks over one or several components of the FRS product might reduce participation from those suppliers who consider the risk to be too high. Volumetric risk might also be a factor, although the migration rate volatility for RSCI SOS customers has not been particularly significant.<sup>34</sup>

A concern from the latest auction has been the low number of actual participants, with only three suppliers placing offers for the RSCI category in the 2014-2015 procurement auctions. If such participation level is sustained, the overall efficiency of the process may come in question, as reduced competition could result in higher costs to DPL customers. Since the auction constructs allow suppliers to react to offers from competing suppliers throughout the process, uncompetitive results might arise if participation in the auction is limited.

As discussed previously, uncertainty regarding the regulatory framework of the wholesale markets can have a dramatic effect on suppliers of fixed-price FRS. Not being able to evaluate the risks while being locked in a fixed-price supply contract can have the effect of driving participants away from the auction, or causing them to include a significant risk premium into their offers. A procurement process relying on fixed-price FRS for a sufficiently long period of time (and in wholesale power markets, three years is sufficiently long) is therefore sensitive to

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<sup>33</sup> Ideally, a backup plan needs to be in place if the results from the auctions are found not to be consistent with market expectations. Tranche 3, for example, is meant to provide another opportunity to find competitive SOS suppliers if the first two tranches have quantities that are unfulfilled. DPL's plan if any portion of its RSCI load is not awarded to a supplier include purchasing all necessary products from the PJM wholesale markets until an alternative proposal is filed and accepted by the PSC.

<sup>34</sup> DPL, 2010, 2012 and 2014 Integrated Resource Plans.

uncertainty in the regulatory framework surrounding wholesale markets as well as market fundamentals. For example, there is a high level of uncertainty about weather-driven pricing in the wholesale energy market over the term of the current FRS contract, especially if a SOS supplier does not have its own resources to backstop the load obligation, and must rely on the wholesale market.

Similarly, competition from potentially more interesting neighboring jurisdictions' solicitations may result in lower participation in the DPL auctions. The efforts (in terms of manpower and credit or financial resources) involved in qualifying for a particular procurement may lead potential suppliers to pick and choose certain SOS solicitations over others. Factors that may result in some solicitations being considered more interesting than others include:

- timing of the auction with respect to other solicitations for SOS supply or with significant PJM processes;
- reduced risk in the product being sought, such as the lack of requirement for renewable attributes, or load being located in a zone that exhibits lesser market price volatility;
- contract term lengths that fit suppliers' risk profile and desire for shorter or longer term hedging;
- larger load being offered for auction, providing for greater scale economies for participants; and
- more streamlined and straightforward qualification requirements.

Finally, stability and consistency within procurement rules is an important factor that can decrease the risks for suppliers, and therefore encourage participation. On that front, Delaware has been relatively stable since 2011 (when RECs were unbundled from the FRS product) with no major change in regulation or legislation that affects FRS contracts.

## **2.4.2 Supply costs**

Participants to DPL's SOS supply auctions are market participants within PJM, and their opportunity costs are based on future energy, capacity and ancillary services costs from the PJM wholesale markets. It is therefore fair to assume that, in a competitive environment, supply offers will tend to reflect costs from these wholesale markets, with adjustment for risks and also a commercially reasonable profit margin.

The FRS wholesale supply service sought by DPL includes energy, capacity, ancillary services and other ISO fees for a fixed price over a three year period. Consequently, all load variation and market price risks are shifted from DPL and its ratepayers to the SOS suppliers (except for renewable generation attributes that are procured by DPL separately). Load deviation from the forecasted values can come from a variety of factors such as weather variations, customers switching from SOS to competitive suppliers and/or variations in the level of DSM of distributed generation. The market price risks include the deviation of actual energy prices during the three year duration of the FRS contracts relative to the expectations embedded in the

SOS supplier's offer (for example, the SOS supplier's forecast of energy purchase costs for load following service, based on forward prices at the time of the auction).

In anticipation of market price and load uncertainty, suppliers will build a margin in their fixed price offers to account for risks, which may then mean that the fixed price paid by DPL's SOS RSCI customers may end up higher than realized wholesale market costs.<sup>35</sup> Uncertainty over certain market regulatory developments, such as the recent Capacity Performance rules, is also likely to reduce participation in the auction process, resulting in higher risk premiums built into remaining supplier offers.

Among the different products included in FRS (energy, capacity, ancillary services, other ISO fees), energy prices volatility carries the greatest risk for suppliers. Due to the forward-looking nature of PJM's capacity market or Reliability Pricing Model ("RPM"), results from the BRAs covering the 3-year contractual period are known at the time DPL holds the SOS supply auctions. Since the results from subsequent reconfiguration auctions have very little impact on the cost of capacity to consumers (with the exception of the uncertainty surrounding PJM's capacity performance resource rules and transition auctions, which caused a unique uncertainty in capacity cost during DPL's 2014-2015 procurement process), the costs of capacity are effectively already known before the auction (although a volumetric risk remains as the capacity costs are generally fixed, but SOS suppliers are paid on the basis of energy consumption). Ancillary services costs and other ISO fees account for about 3% of the total cost of electricity to consumers, and thus variations do not significantly affect supply costs. As a result, the price for energy is the most risky variable remaining at the time DPL's SOS supply auctions are held.

### **2.4.3 Price stability**

As a consequence of the procurement of fixed price FRS supply (in advance of wholesale market outcomes), the ladder approach and three-year contract terms, the total supply costs for SOS customers represent a rolling three year average of auction results. As a result, the SOS consumer faces a relatively stable price, devoid of actual year-on-year wholesale market price fluctuations. Increases or decreases in any single auction results (presumably due to evolving wholesale market prices) will have a delayed effect on DPL supply costs, which is an advantage for customers in an environment where wholesale market prices are rising. However, this also results in above-market prices when wholesale market prices are decreasing.

The current procurement approach meets the Legislature and Commission's goal of providing price stability to the electricity customers. The downside of the current approach is that supply

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<sup>35</sup> If the SOS supplier erred in their forecast for future market prices, the fixed price may not cover the entire wholesale market cost. In this scenario, SOS customers would fare better by paying the fixed price than if they had bought from the wholesale markets directly. However, such "errors" are not without longer term consequences. That SOS supplier may be discouraged from further participation in subsequent auctions, after experiencing a loss, and that may cause reduced participation, to the detriment of the auctions in the future.

costs for DPL customers may be higher due to a risk premium incorporated into the bids, relative to other procurement approaches that are more short term and therefore have smaller market risk premium (as discussed later in this paper).

Furthermore, DPL's laddered approach and the resulting price stability may impair competitive retail suppliers within the State, as the smoothing of wholesale market costs dampens the wholesale market price signal and thereby reduces incentive for retail customers to leave SOS for competitive service. In a period where wholesale market prices are falling, competitive retail suppliers (whose costs of supply reflect the market conditions) may be in a position to offer rates to consumers that are lower than the SOS rate. However, in an environment with rising wholesale market prices, competitive suppliers would not be able to compete as effectively with a smooth SOS rate that has built in prices from two or three years ago. The resulting variation in supply costs (relative to SOS costs) may not be sustainable for many competitive suppliers, resulting in fewer competitive suppliers willing to serve retail consumers in Delaware. Other factors, however, can also affect the competitive retail market, including the regulatory and administrative requirements, transactions costs of serving as the SOS supplier, and associated cost of doing business.

#### **2.4.4 Amount of resources required to manage the supply portfolio**

The current procurement approach from DPL is easy to manage. Through its annual auction, DPL is able to procure FRS (with the exception of Renewable Energy Credits) for its entire SOS load at a fixed price. There are no contract negotiations with potential suppliers and no supply portfolio management is required. By shifting all the Load Serving Entity requirements to the SOS suppliers, DPL is not required to have the resources, expertise, technologies, credit, and risk policies to actively participate in the wholesale electricity or financial derivatives markets.

However, the savings associated with the smaller requirement for resources need to be weighed against the cost to shift all risk and management duties to the SOS suppliers. In that regard, assuming the proposed merger of DPL's parent Pepco Holdings Inc. with Exelon goes through, DPL may be in a position benefit from the expertise of its affiliates to increase its involvement in managing a supply portfolio.

### 3 Case studies – SOS procurement mechanisms in various jurisdictions

LEI has reviewed the SOS (or its equivalent) supply procurement process for a number of utilities to assess the characteristics of various procurement methods adopted in different jurisdictions. LEI has focused on utilities operating in PJM and other restructured markets (such as ISO-NE for Connecticut and Massachusetts) so as to ensure for comparability to the Delaware market.

Nearly all of the reviewed utilities procure FRS using a competitive procurement process. However, there are several variations in the product definition, procurement methodology, contract length, and auction mechanism between the different utilities. Figure 16 presents a summary of the different approaches used by the utilities reviewed.

**Figure 16. Summary table of SOS procurement process across different jurisdictions**

Jurisdiction	Product	Renewable attributes	Number of auctions per year	Delivery term	Procurement mechanism	Simultaneous process by state utilities	Participation in 2015 auctions	Results of 2015 auctions
Delaware SOS (PJM)	Full Requirements Service	Procured separately	2	3 years	Reverse auction	N/A	3 participants	\$82.18/MWh
Connecticut SS (ISO-NE)	Full Requirements Service and self-managed load	Included in FRS	4	6 months 1 year	Sealed bid	No	4-7 participants	N/A
D.C. SOS (PJM)	Full Requirements Service	Included in FRS	2	3 years	Sealed bid	N/A	3 participants	N/A
Illinois BGS (PJM)	Fixed energy blocks	Procured separately	2	Monthly over a 3 year horizon	Sealed bid	Yes	6-9 winners	N/A
Maryland SOS (PJM)	Full Requirements Service	Included in FRS	2 - 4	1 year 2 years	Sealed bid	Yes	2 participants	N/A
Massachusetts BS (ISO-NE)	Full Requirements Service	Procured separately	2	1 year	Sealed bid	No	Low	N/A
New Jersey BGS (PJM)	Full Requirements Service	Included in FRS	1	3 years	Descending clock auction	Yes	9 winners	\$80/MWh - \$100/MWh
Ohio SS (PJM)	Full Requirements Service	Procured separately	2	1 year 2 years 3 years	Descending clock auction	No	6-8 participants	\$53/MWh - \$69/MWh
Pennsylvania DS (PJM)	Full Requirements Service	Procured separately	3	6 months 1 year 2 years	Sealed bid or Descending clock auction	No	Unknown	\$60/MWh - \$77/MWh

#### 3.1 Connecticut

**Introduction:** Connecticut is located within the ISO-NE market footprint and control area. The General Statutes of Connecticut §16-2(l) created the position of Procurement Manager (“PM”) whose role is to oversee the procurement of electricity for the Standard Service (“SS”) customers of the state’s utilities: United Illuminating Company (“UI”) and Connecticut Light & Power

Company ("CL&P", a subsidiary of Eversource). Under the original statute enacted by the Connecticut Legislature in 2003 to promulgate SS, the goals are to procure just, reasonable, and stable rates for consumers which reflect underlying wholesale market prices.<sup>36</sup>

The PM's current procurement plan recognizes that UI does not have adequate available manpower or infrastructure to assume LSE responsibility, and therefore is unlikely to achieve the same portfolio benefit that is available through its wholesale suppliers. As such, the procurement plan directs UI to procure 100% of its SS supply through full requirements service obtained through sealed-bid RFPs.<sup>37</sup>

On the other hand, CL&P has access to significant resource through its parent company Eversource. Therefore, the PM authorizes CL&P to self-manage 20% of its SS load. The 20% target may be modified based on the performance of its self-managed portfolio. The portfolio for the remainder of the SS load (that is not self-managed) is procured through full requirements service obtained through sealed-bid RFPs in the same manner as for UI.<sup>38</sup>

**Products procured:** For the portion of its SS load which is self-managed, CL&P is authorized to procure any mix and types of physical and financial products.<sup>39</sup> Otherwise, the product procured through competitive bidding is full-requirements. It includes all components of the Locational Marginal Pricing ("LMP") - including energy, loss and congestion - as well as all services, products, obligations, and other costs that are necessary to supply SS load. Suppliers must also include the minimum amount of energy derived from renewable resources as is required by legislative or regulatory authority.<sup>40</sup>

The Connecticut utilities must otherwise conduct four SS procurements per year seeking 6-month or 1-year contracts such that each rate period reflects an average of contracts awarded at three or four different dates.<sup>41</sup> The procurement structure is intended to diversify the

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<sup>36</sup> Public Act 03-135.

<sup>37</sup> Request for PURA review of Power Procurement Plan, *PURA docket 12-06-02*. <<http://www.dpuc.state.ct.us/dockhist.nsf/8e6fc37a54110e3e852576190052b64d/2f618450db6e51f785257c0e004f61c1?OpenDocument>>

<sup>38</sup> Final Decision. *PURA Docket 12-06-02*.  
<<http://www.dpuc.state.ct.us/dockhist.nsf/8e6fc37a54110e3e852576190052b64d/1e131cb621d4643585257c0e004f6203?OpenDocument>>

<sup>39</sup> Ibid.

<sup>40</sup> *Standard Service Wholesale Sales Agreement*. Web. <<https://www.eversource.com/Content/docs/default-source/ct--pdfs/sales-agreement.doc?sfvrsn=0>>

<sup>41</sup> Final Decision. *PURA Docket 12-06-02RE01*.  
<<http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/e50980f879a872db85257d330053ebfc?OpenDocument>>

procurement dates so that the cost of supply is not overly influenced by specific market conditions.<sup>42</sup>

Potential suppliers may submit offers under one of two scenarios. In the first scenario, winning bidders assume the load obligation and all LMP costs. Under the second scenario, winning bidders assume the load obligation but CL&P reimburses the difference between LMP congestion at the load location and at the Massachusetts Hub. In the second scenario, CL&P retains all ARR proceeds associated with the winning bidder's portion of the SS load.<sup>43</sup>

The products auctioned are slices corresponding to 10% of each utility's SS load. This includes 10% of the load for all four customer classes.<sup>44</sup>

**Methodology:** For the portion of its SS load that is self-managed, CL&P must submit an annual portfolio management plan to the PM for review and approval. The plan contains the mix and types of physical and financial products to be procured and also quantifies downside and upside sensitivity cases. If the plan is approved by the PM, a non-public technical meeting is held to inform the Public Utilities Regulatory Authority of the decision. CL&P must provide monthly project control reports to the PM (to track actual performance of the self-managed portfolio), and expected forecast cost of the portfolio relative to the outlook presented in the portfolio management plan.<sup>45</sup>

For the portion of the load that is procured through competitive bidding, potential suppliers must provide final bids by the published deadline after which winners are selected from the lowest prices qualified bids. Bidders must submit monthly fixed-price bids, and the load weighted average price over the delivery period is the criterion used to select winners.

**Results:** Participation in CL&P's February 2015 standard service auction was higher than in other recent auctions with seven potential suppliers participating in the auction.<sup>46</sup> UI's April 2015 solicitation attracted 4 potential suppliers, which is on par with previous auctions.<sup>47</sup>

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<sup>42</sup> PM Procurement Plan Summary, Web.

<<http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/4e89ae8bbe98c7d685257d630069f053?OpenDocument>>

<sup>43</sup> Standard Service RFP for 2015-2016. Web. <<https://www.eversource.com/Content/docs/default-source/ct---pdfs/rfp.docx?sfvrsn=2>>

<sup>44</sup> Large C&I, Residential, Small C&I, Street Lighting.

<sup>45</sup> Final Decision. PURA Docket 12-06-02.

<<http://www.dpuc.state.ct.us/dockhist.nsf/8e6fc37a54110e3e852576190052b64d/1e131cb621d4643585257c0e004f6203?OpenDocument>>

<sup>46</sup> Eversource Wholesale Supply – Connecticut. Web. <[https://www.eversource.com/Content/general/about/doing-business-with-us/energy-supplier-information/wholesale-supply-\(connecticut\)](https://www.eversource.com/Content/general/about/doing-business-with-us/energy-supplier-information/wholesale-supply-(connecticut))>

### 3.2 District of Columbia

**Introduction:** The District of Columbia is located in the Pepco zone of PJM. The Public Service Commission of DC adopted a wholesale procurement model to acquire full requirements service through a competitive RFP process to meet the SOS load after February 7, 2005.<sup>48</sup> The procurement parameters, including the amounts of supply procured annually and contract terms, have been approved by the DC PSC to provide a dampening effect on price swings.<sup>49</sup>

**Products procured:** The product procured is full requirements service, including energy, capacity, ancillary services, renewable energy resource requirements, electric losses and any other PJM- or FERC-approved services associated with the SOS Administrator's load obligation. However, network integration transmission service is not included, as it is obtained by the SOS Administrator.<sup>50</sup> The contracts are awarded for a duration of three years.

**Methodology:** Load for each service type is bid in rounds referred to as "tranches", where each tranche is fulfilled at a different point in time within the year. Up to three tranches of bidding can be used, however 100% of the load is solicited in the first two tranches (with proposals due respectively in December and January)<sup>51</sup> with a third tranche held in reserve to be used if any load is still unfilled after the second tranche. This is similar to the methodology used by DPL. Within each tranche, the load is solicited separately by different contract terms and in pre-specified proportions. Residential and small commercial load solicitation is for 36-month wholesale supply contracts representing approximately 33% of the combined service type load, resulting in a laddering of supply contracts.<sup>52</sup>

Potential wholesale SOS providers demonstrate their qualifications to provide wholesale full requirements service by providing proof that they are qualified to participate in the PJM

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<sup>47</sup> UI Standard Service and Last Resort Service disclosure of bidding data.

<sup>48</sup> "Pepco District of Columbia SOS RFP." *Pepco Holdings Inc.* Wed. <<http://www.pepcoholdings.com/about-us/do-business-with-phi/energy-suppliers/wholesale-suppliers/pepco-dc-sos-rfp/>>

<sup>49</sup> "Standard Offer Service- Frequently Asked Questions." *Pepco Holdings Inc.* Wed. <<http://www.pepco.com/my-home/choices-and-rates/district-of-columbia/sos/frequently-asked-questions/>>

<sup>50</sup> "The District of Columbia Standard Offer Service Rules. 15-4101 Selection of Wholesale SOS Providers." *Secretary of the District of Columbia. Web.* <<http://www.dcregs.dc.gov/Gateway/ChapterHome.aspx?ChapterNumber=15-41>>

<sup>51</sup> 2014 District of Columbia RFP for wholesale full requirements electric power supply, *Pepco* <[http://www.dcpso.org/edocket/docketsheets\\_pdf\\_FS.asp?caseno=FC1017&docketno=628&flag=D&show\\_result=Y](http://www.dcpso.org/edocket/docketsheets_pdf_FS.asp?caseno=FC1017&docketno=628&flag=D&show_result=Y)>

<sup>52</sup> "Pepco District of Columbia SOS RFP Overview." *Pepco Holdings. Inc. Web.* <<http://www.pepcoholdings.com/about-us/do-business-with-phi/energy-suppliers/wholesale-suppliers/pepco-dc-sos-rfp/overview/>>

markets and have all the necessary FERC authorizations to enter into wholesale energy contracts.<sup>53</sup> Potential suppliers submit their offers by the auction deadline, after which the blocks are awarded to the lowest bidders, until the tranche targets are filled.

Bidders must submit fixed-price offers for the summer and non-summer periods, together with the number of blocks they are willing to serve at that price. The load weighted average price over the delivery period is the criterion used to select winners.

**Results:** Three suppliers participated in Pepco's 2014-2015 Standard Offer Service RFP which occurred in December 2014 (first tranche) and January 2015 (second tranche). All of them won a contract and are obligated to provide electricity to SOS customers in Pepco's DC service area for a three-year term starting June 1, 2015.<sup>54</sup>

### 3.3 Illinois

**Introduction:** On September 29, 2014 the Illinois Power Agency ("IPA") filed a Procurement Plan with the Illinois Commerce Commission ("ICC"). The Procurement Plan provides for purchase of electric supply to serve those customers of Ameren Illinois Company ("Ameren") and Commonwealth Edison Company ("ComEd") electing Basic Generation Service ("BGS") over the five-year period beginning on June 1, 2015 and ending on May 31, 2020. Procurement events are to be held to procure specific quantities of on-peak and off-peak energy to be delivered to Ameren and ComEd respectively in both spring (the results are provided below) and fall of 2015.<sup>55</sup>

**Products procured:** Ameren and ComEd procure an energy-only product through a competitive bidding process, and rely on PJM's RPM to procure capacity. All on-peak hours in a given month constitute the "On-Peak Segment" for that month. All off-peak hours constitute the "Off-Peak Segment" for that month. A "Product" is a constant quantity of energy to be supplied to a company at the delivery point specified by the company in either the On-Peak Segment or the Off-Peak Segment of a specific month. There are thus potentially twenty-four Products for each company and each year. The "Target" for each Product is the quantity of each Product that the RFP seeks to procure expressed in numbers of 25 MW blocks.<sup>56</sup>

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<sup>53</sup> "The District of Columbia Standard Offer Service Rules. 15-4101 Selection of Wholesale SOS Providers." *Secretary of the District of Columbia. Web.*  
<<http://www.dcregs.dc.gov/Gateway/ChapterHome.aspx?ChapterNumber=15-41>>

<sup>54</sup> "Winning Wholesale Suppliers for Standard Offer Service." *Public Service Commission of the District of Columbia. Web.* <[http://www.dcpsc.org/customerchoice/whatis/electric/winning\\_wholesale.asp](http://www.dcpsc.org/customerchoice/whatis/electric/winning_wholesale.asp)>

<sup>55</sup> NERA Economic Consulting. *Illinois Power Agency Spring 2015 Procurement Events for Standard Products (Block Energy) Request for Proposals Process and Rules.* March 09, 2015.

<sup>56</sup> Ibid.

Back in 2006, Illinois utilities Ameren and ComEd held an initial, reverse-clock auction to procure FRS for their BGS customer. The load was divided into thirds and auctioned for one-, two- and three-year terms. However, the prices resulting from the auction were deemed too high amid allegations of market manipulation.<sup>57</sup> As a result, in 2008, the ICC approved a plan by the utilities and the IPA to procure energy-only products (as the FRS contracts expired) through a competitive bidding process. The utilities argued that financial swap contracts do not have the same administrative burden as bilateral transactions for physical delivery, yield lower expected total cost, and enjoy acceptance by the marketplace, and as such would attract a larger number of participants in the competitive RFP process.<sup>58</sup>

There have been recent discussions among stakeholders around IPA's procurement plan and specifically about switching to full requirements. From the ratepayers perspective, the major difference between wholesale block energy products and load-following full requirements products is that procuring a fixed quantity of block energy products leaves some market price risk with ratepayers, while soliciting a load-following product shifts that risk to the suppliers. However, shifting that market price risk away from ratepayers comes at a cost (in the form of a risk premium on winning bids) to supply load-following products.<sup>59</sup> For the time being, the process is unchanged.

In addition, although Illinois saw good participation in the spring RFP in 2014 (following the winter price spikes caused by the polar vortex), default service procurements in other states during the winter period saw lower than expected levels of participation. These states had acceptable results, but the lower levels of participation show that market uncertainty will affect default service procurements. For example, Maryland saw very low participation for its quarterly solicitation for default service for all four of its EDCs on January 27 – right in the middle of the second wave of PJM price spikes.<sup>60</sup>

**Methodology:** A bidder may bid (in \$/MWh) on any number or on all Products. For each procurement event, the evaluation of bids for a company proceeds in two steps. In the first step, all bids that fail to meet the benchmarks are eliminated. The benchmarks are confidential and are subject to review and approval by the ICC. In the second step, the procurement administrator evaluates the bids that meet or beat the benchmarks, and selects a package of bids

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<sup>57</sup> M Negrete-Pincetic and G Gross, Lessons from the 2006 Illinois Electricity Auction, 2007 iREP Symposium- Bulk Power System Dynamics and Control. <<http://gross.ece.illinois.edu/files/2015/03/2007-Aug-Lessons-from-the-2006-IL-Electricity-Auction.pdf>>

<sup>58</sup> Illinois Commerce Commission, Approval of Initial Procurement Plan, case 07-0527, 2008. <<http://www.icc.illinois.gov/downloads/public/edocket/211610.pdf>>

<sup>59</sup> "Initial Comments on the 2014 Electric Procurement Events Pursuant to Section 16-111.5 of the Illinois Public Utilities Act." *Boston Pacific*. Web. <<http://www.icc.illinois.gov/electricity/procurementprocess2014.aspx>>, page 7.

<sup>60</sup> Ibid, page 13.

that procures all needed blocks for that company at the lowest average cost per MWh. This package of bids is called the Least Cost Package for a company and each bid in the Least Cost Package is a winning bid.<sup>61</sup>

The IPA annually determines a procurement plan which sets the goal for the quantity of energy blocks to procure. The annual quantity is designed to hedge a progressively higher percentage of the load as the delivery period gets closer.

**Results:** In the April 2015 solicitation, there were nine successful bidders in the Ameren procurement, while there were six successful bidders in the ComEd procurement.<sup>62</sup> The auction resulted in a different price for each monthly on-peak and off-peak period over the three-year procurement horizon (June 2016 – May 2018).

### 3.4 Maryland

**Introduction:** Maryland is part of four separate PJM transmission zones, including the APS, BGE, DPL, and Pepco zones. BGE is the only zone entirely within the state boundaries.<sup>63</sup> In accordance with the Maryland Public Service Commission Orders, the Maryland utilities procure SOS supply through a competitive wholesale bidding process. Each of the Maryland utilities conduct a separate, yet simultaneous, wholesale, multi-procurement process under identical rules and schedules.<sup>64,65</sup>

**Products procured:** The product procured through competitive bidding is full-requirements and inclusive of renewable energy obligations. It includes all necessary energy, capacity, transmission (other than NITS), ancillary services, renewable energy obligations, transmission and distribution losses, congestion management costs and other ISO fees that are required to

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<sup>61</sup> “Spring 2015 Procurement Events: Bidder Information Call.” *Illinois Power Agency*. Web. March 10, 2015. <<http://ipa-energyrfp.com/download/standard-products-category-2015/IPA%20Bidder%20Information%20Webcast%2010%20MAR%202015.pdf>>

<sup>62</sup> “Standard Products RFP Results.” *Illinois Power Agency*. Web. April 1, 2015. <[http://ipa-energyrfp.com/download/standard-products-category-2015/Spring%202015%20STP%20Procurement%20Events%20-%20Results\\_4-1-2015.pdf](http://ipa-energyrfp.com/download/standard-products-category-2015/Spring%202015%20STP%20Procurement%20Events%20-%20Results_4-1-2015.pdf)>

<sup>63</sup> “Appendix C- Forecasting Electricity Load Growth in Maryland.” *Maryland Power Plant Research Program*. Web. February 25, 2010. <[http://www.esm.versar.com/PPRP/ceir15/Report\\_C.htm](http://www.esm.versar.com/PPRP/ceir15/Report_C.htm)>

<sup>64</sup> “MD SOS RFP.” *FirstEnergy*. Web. September 5, 2014. <[https://www.firstenergycorp.com/content/fecorp/upp/md/power\\_procurements/mdsosrfp.html](https://www.firstenergycorp.com/content/fecorp/upp/md/power_procurements/mdsosrfp.html)>

<sup>65</sup> “2015 Request for Proposals for Full Requirements Wholesale Electric Power Supply.” *The Potomac Edison Company*. Web. September 5, 2014. <[https://www.firstenergycorp.com/content/dam/upp/files/md/power/mdsosrfp/supplierdocs/PE\\_RFP\\_2015.pdf](https://www.firstenergycorp.com/content/dam/upp/files/md/power/mdsosrfp/supplierdocs/PE_RFP_2015.pdf)>

supply the specified percentage (except for network integration transmission service and distribution service).<sup>66</sup>

Twice each year (in April and October),<sup>67</sup> Baltimore Gas & Electric ("BGE"), Delmarva and Pepco request offers to meet the SOS supply requirements for about 25% of the total residential and small commercial loads.<sup>68</sup> For the Potomac Edison Company ("PE"), bidding for residential contracts occurs in four procurements per year.<sup>69</sup> As for the terms of supply contracts, the solicitation is for two-year<sup>70</sup> wholesale supply contracts for residential and small commercial load in 2015 (except for PE which seeks contracts for one and two years terms), resulting in laddered contracts.<sup>71</sup>

**Methodology:** Bidding on the load for each service type is conducted through a multi-procurement process. The load in each procurement is divided into blocks of approximately 50 MW PLC for bidding purposes. Suppliers may bid on as many blocks, for as many service types, as the supplier deems appropriate. Potential suppliers must submit their offers by the RFP deadline, after which the blocks are awarded to the lowest bidders, until the tranche targets are filled. A supplier of full-requirements service will have an obligation stated as a percentage of the actual retail load for a service type, and as that load varies from day to day and hour to hour, the supplier's full requirements obligation follows those variations.<sup>72</sup>

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<sup>66</sup> "Appendix 11, 2015 Full Requirements Service Agreement." *The Potomac Edison Company*. Web. 2015.

<[https://www.firstenergycorp.com/content/dam/upp/files/md/power/mdsorsrf/supplierdocs/PE\\_FS\\_A\\_2015.pdf](https://www.firstenergycorp.com/content/dam/upp/files/md/power/mdsorsrf/supplierdocs/PE_FS_A_2015.pdf)>

<sup>67</sup> BGE Electric Supply Auction Results. Web.

<<http://www.bge.com/myaccount/billsrates/ratestariffs/electricservice/Pages/Electric-Supply-Auction-Results.aspx>>

<sup>68</sup> "Maryland Standard Offer Service FAQ." *Delmarva Power*. Web. <<http://www.delmarva.com/my-home/choices-and-rates/maryland/standard-offer-service/standard-offer-service-faq/>>

<sup>69</sup> "Maryland Utilities Issue Request for Proposals for the Supply of Wholesale Electric Power." *Pepco Holdings Inc.* Web.[http://www.pepcoholdings.com/uploadedFiles/wwwpepcoholdingscom/Content/Page\\_Content/about-us/do-business-with-phi/2014\\_Delmarva\\_MD\\_SOS\\_RFP/2015PressRelease%2009032014%20\(final\).pdf](http://www.pepcoholdings.com/uploadedFiles/wwwpepcoholdingscom/Content/Page_Content/about-us/do-business-with-phi/2014_Delmarva_MD_SOS_RFP/2015PressRelease%2009032014%20(final).pdf)

<sup>70</sup> The contract term is 2-year for BGE, Delmarva Power and Pepco, but for the Potomac Edison Company, the term ranges from 1 to 2- year. Source:  
[http://www.pepcoholdings.com/uploadedFiles/wwwpepcoholdingscom/Content/Page\\_Content/about-us/do-business-with-phi/2014\\_Delmarva\\_MD\\_SOS\\_RFP/2015PressRelease%2009032014%20\(final\).pdf](http://www.pepcoholdings.com/uploadedFiles/wwwpepcoholdingscom/Content/Page_Content/about-us/do-business-with-phi/2014_Delmarva_MD_SOS_RFP/2015PressRelease%2009032014%20(final).pdf)

<sup>71</sup> "2015 Pepco Maryland SOS RFP Overview." *Pepco Holdings Inc.* Web. September 5, 2015.  
<<http://www.pepcoholdings.com/about-us/do-business-with-phi/energy-suppliers/wholesale-suppliers/2014-pepco-md-sos-rfp/overview/>>

<sup>72</sup> Ibid.

Bidders must submit fixed-price offers for the summer and non-summer periods, together with the number of blocks they are willing to serve at that price. The load weighted average price over the delivery period is the criterion used to select winners.

**Results:** The pricing information is confidential (in compliance with PSC Formal Case No. 9056 and 9064, which governs the SOS bidding process).

With regards to the participation level to the RFP, the number of generators willing to register to bid in Maryland's SOS RFP (which is a simultaneous process for all utilities) and the number of actual bids received have been limited in the latest auction. On October 20<sup>th</sup>, 2014, only two bidders offered to supply residential and small commercial SOS generally and only one bidder made offers for several other products.

In comparison, prior procurements for SOS for BGE's customers resulted in 5-11 participants.<sup>73</sup> For the 2015 procurement as a whole, the Maryland PSC received a ratio of 1.8 MW bid for every megawatt solicited, a significant reduction from the previous auction, in which 3.0 MW were bid for each megawatt required. For residential and Type I commercial SOS, the ratio was only 1.2 to 1.<sup>74</sup> In a letter to PJM, the chairman of the Maryland PSC identified the uncertainty surrounding capacity market re-design in PJM, and specifically uncertainty regarding PJM's new Capacity Performance product as the cause of the decline in auction participation.<sup>75</sup>

### 3.5 Massachusetts

**Introduction:** Massachusetts is located within the ISO-NE market footprint and control area. In 1997, the State Legislature passed the Electric Restructuring Act which required that each distribution company provide Basic Service ("BS") to those customers that have not otherwise switched to a competitive retail supplier. The legislation also specified that basic service be competitively procured, that the basic service rate not exceed the average monthly market price of electricity, and finally that bids to supply basic service "shall include payment options with rates that remain uniform for periods of up to six months."<sup>76</sup>

**Products procured:** Massachusetts utilities National Grid, Eversource, and Unitil rely on a competitive bidding process to procure an All Requirements Service ("ARS"), which includes

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<sup>73</sup> BGE Electric Supply Auction Results. Web.

<<http://www.bge.com/myaccount/billsrates/ratestariffs/electricservice/Pages/Electric-Supply-Auction-Results.aspx>>

<sup>74</sup> "Re: Effect of PJM's Capacity Performance Proposal on Maryland's Standard Offer Service Auction." *Maryland Public Service Commission*. Web. October 30, 2014. <<http://www.pjm.com/~media/committees-groups/committees/elc/coalition-briefing-papers/ex-parte-md-psc-letter-to-the-pjm-board.ashx>>

<sup>75</sup> Ibid.

<sup>76</sup> *An Act Relative to Restructuring the Electric Industry in the Commonwealth, Regulating the Provision of Electricity and Other Services, and Promoting Enhanced Consumer Protection Therein*. Massachusetts St. 1997, c. 164

energy, capacity, ancillary services, and other ISO fees. ARS is essentially similar to DPL's FRS. The utilities conduct competitive solicitations every six months (in October and April) to procure 50% of the supply requirement for one year for their residential and small commercial and industrial customers.<sup>77</sup> There is some laddering due to the frequency of the competitive solicitations and the length of the contracts, but it does not smooth out the wholesale market costs as much as DPL's SOS auction process.

**Methodology:** In the competitive procurements, wholesale electricity suppliers submit bids to provide ARS for the one year basic service term, with bid prices identified separately for each month of the term. The bids are evaluated by taking the weighted average of the monthly bid prices and winning bids are chosen based on the lowest load-weighted average annual price.

The various utilities conduct staggered solicitations to foster competition by allowing more opportunities for the suppliers of BS. In addition, staggered solicitations mitigate the risks of higher prices that may result from simultaneous solicitations for significant quantities of load.<sup>78</sup> For instance, Eversource's latest solicitations occurred in April 2015 for the period starting July 1<sup>st</sup>,<sup>79,80</sup> Unitil's latest solicitation occurred in March 2015 for the period starting June 1<sup>st</sup>,<sup>81</sup> and National Grid's latest solicitation occurred in February 2015 for the period starting May 1<sup>st</sup>.<sup>82</sup>

**Results:** The latest procurement process was held in April 2015 but results are confidential.<sup>83</sup> However, given that recent procurement processes resulted in high electricity prices and

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<sup>77</sup> Massachusetts Department of Public Utilities, *Investigation by the Department of Public Utilities on its own Motion into the Provision of Basic Service*, case 15-40, April 2015. < <http://www.mass.gov/eea/docs/dpu/orders/dpu-15-40-basic-service-noi.pdf>>.

<sup>78</sup> Department of Telecommunications and Energy, docket 99-60, order 99-60-B, June 2000. <[http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=99-60%2fdefault\\_order.pdf](http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=99-60%2fdefault_order.pdf)>

<sup>79</sup> NSTAR Electric, Department of Public Utilities docket 15-BSF-C-2, May 2015. <[http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-BSF-C2%2finitial\\_filing\\_cover.pdf](http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-BSF-C2%2finitial_filing_cover.pdf)>

<sup>80</sup> Western Massachusetts Electric Company, Department of Public Utilities docket 15-BSF-B-2, May 2015. <[http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-BSF-b2%2finitial\\_filing\\_cover.pdf](http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-BSF-b2%2finitial_filing_cover.pdf)>

<sup>81</sup> Fitchburg Gas and Electric Light Company, Department of Public Utilities docket 15-BSF-A-2, April 2015. <[http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-BSF-A2%2finitial\\_filing.pdf](http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-BSF-A2%2finitial_filing.pdf)>

<sup>82</sup> Massachusetts Electric Company and Nantucket Electric Company, Department of Public Utilities docket 15-BSF-D-1, March 2015. < [http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-BSF-d1%2finitial\\_filing.pdf](http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-BSF-d1%2finitial_filing.pdf)>

<sup>83</sup> Eversource, *NSTAR Electric – Basic Service Rates*, Massachusetts Department of Public Utilities docket 15-BSF-C-2. <<http://web1.env.state.ma.us/DPU/FileRoom/dockets/recent>>

reduction in supplier response to solicitations, the Massachusetts Department of Public Utilities (“DPU”) in April 2015 opened an investigation into the pricing and procurement of BS. In its Framework for Investigation, the DPU outlined potential changes to basic service pricing and procurement which were (i) adopting a more “layered” approach to the procurement of basic service supply; (ii) providing the distribution companies with greater discretion and flexibility in their basic service supply procurement practices; and (iii) changing the “all requirements” obligation currently placed on basic service suppliers.<sup>84</sup>

Several participants in the docket, however, opposed significant changes to the current procurement process. They argued that no improvement to the process for procuring BS supply would minimize costs as compared to the current portfolio management practices of wholesale suppliers, largely because of the underlying wholesale energy market dynamic. During the winter period, demand for natural gas from power generators added to the high demand for customer heating purposes resulting in constraints on the natural gas pipelines serving the region. High winter electricity prices in New England are a consequence of high natural gas prices. Therefore, participants argued that without addressing the fundamental causes of high winter electricity prices in New England, changing the BS solicitation process would not meaningfully reduce costs to consumers. DPU’s investigation process is ongoing.

### 3.6 New Jersey

**Introduction:** Since 2002, New Jersey’s Electric Distribution Companies (“EDCs”)<sup>85</sup> have held an annual auction process to procure supply to serve their Basic Generation Service (“BGS”) customers through a statewide auction. The needs of residential and smaller commercial customers are met through a statewide auction called the “BGS-RSCP” auction.

The auction is designed to procure supply for BGS customers at a cost consistent with market conditions, providing an opportunity for energy trading and marketing companies to provide BGS supply.<sup>86</sup>

**Products procured:** The winners of the BGS-RSCP auction are responsible for fulfilling all the requirements of a PJM LSE, including supplying capacity, energy, ancillary services, transmission, and any other service as may be required by PJM.<sup>87</sup> Suppliers must also satisfy the State’s renewable portfolio standards.

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<sup>84</sup> Massachusetts Department of Public Utilities, *Investigation by the Department of Public Utilities on its own Motion into the Provision of Basic Service*, case 15-40, April 2015. < <http://www.mass.gov/eea/docs/dpu/orders/dpu-15-40-basic-service-noi.pdf>>.

<sup>85</sup> Public Service Electric & Gas Company, Atlantic City Electric Company, Jersey Central Power & Light, Rockland Electric Company.

<sup>86</sup> “Overview.” *BGS-Auction*. Web. <<http://www.bgs-auction.com/bgs.auction.overview.asp>>

<sup>87</sup> Ibid.

Having a full requirements product places the portfolio acquisition and price-risk management function in the hands of the BGS suppliers. The full requirements product is designed such that all aspects of BGS supply can be provided through the competitive market, including risk assessment and management. Also, the price for BGS is intended to serve as an efficient competitive benchmark for competitive retail choice. Thus, it also encourages the development and efficient working of competitive retail markets.<sup>88</sup>

For their BGS-RSCP load, the EDCs use a rolling procurement structure, where each year in February one-third of the load is procured through the auction process. The supply term is three years, from June 1<sup>st</sup> of the auction year to May 31<sup>st</sup> of the last supply year.<sup>89</sup>

**Methodology:** A simultaneous, multiple round, descending clock auction format has been used since the inception of the New Jersey BGS auction. For the BGS-RSCP auction, the BGS load is divided into tranches (NJ tranches are equivalent to Delaware blocks) with each tranche expected to be close to 100 MW of peak demand. All tranches for the BGS-RSCP load of all four EDCs are procured through the BGS-RSCP auction, with a separate clearing price for each EDC to reflect the underlying cost of electricity in the wholesale markets for each service territory. No bidder can bid and win more tranches than the load cap, which is established either on a statewide or on an EDC-specific basis.

In the descending-clock auction, all tranches for each EDC are put on offer through the same auction. Each auction begins with a single starting price for each EDC and proceeds in rounds. Bidders bid by providing the number of tranches that they are willing to serve for each EDC at the prices announced by the Auction Manager. If the number of tranches bid is greater than number of tranches needed for an EDC, the price for that EDC is reduced for the next round.

**Results:** The total number of bidders in the latest auction is confidential.<sup>90</sup> However, auction results show that there were 9 different winners in the February 2015 auction, which is similar to the number of winners in previous auctions.<sup>91</sup> Figure 17 presents results from the auction for the different utilities, with supply costs ranging from \$80/MWh to \$100/MWh. It is important to note that renewable attributes are included in the New Jersey FRS product, which partially explains the higher prices relative to other jurisdictions.

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<sup>88</sup> "Proposal for Basic Generation Service Requirements to Be Procured Effective June 1, 2016." July 1, 2015. <[http://www.bgs-auction.com/documents/2016\\_Front\\_Part\\_of\\_Filing\\_1\\_JUL\\_2015\\_as\\_filed.pdf](http://www.bgs-auction.com/documents/2016_Front_Part_of_Filing_1_JUL_2015_as_filed.pdf)>, Page 7.

<sup>89</sup> Ibid.

<sup>90</sup> "Annual Final Report on the 2014 BGS FP and CIEP Auctions and the 2014 RECO SWAP RFP." *Boston Pacific Company*. June 3, 2014. <[http://www.bgs-auction.com/documents/Post\\_Auction\\_Report\\_2014\\_Auctions\\_Boston\\_Pacific\\_redacted.pdf](http://www.bgs-auction.com/documents/Post_Auction_Report_2014_Auctions_Boston_Pacific_redacted.pdf)>

<sup>91</sup> *BGS past auction results*. Web. <<http://www.bgs-auction.com/bgs.auction.prev.asp>>

**Figure 17. New Jersey February 2015 residential SOS procurement results**

Class	Residential
Supply period	June 2015 - May 2018
ACE	\$86.06
JCP&L	\$80.42
PSE&G	\$99.54
Rockland	\$90.66

### 3.7 Ohio

**Introduction:** Utilities in Ohio procure their entire supply for Standard Service Offer (“SSO”) customers through competitive RFPs. Although now both AEP Ohio and FirstEnergy Ohio procure full requirements service, AEP Ohio recently switched from an energy-only product,<sup>92</sup> which did not require the supplier to provide capacity, transmission, ancillary services, or renewable portfolio standard compliance.

**Products procured:** The competitive procurement processes are designed to procure full requirements service. Winning bidders assume all responsibilities of a LSE. Full requirements service includes energy, capacity, market-based transmission service and market-based transmission ancillaries, and any other LSE service or other service as may be required by PJM to serve the SSO Load. However, the utilities provide distribution services and are responsible for NITS charges, and for other non-market-based FERC approved transmission charges for “shopping” (i.e., load on a competitive retail contract) and “non-shopping load” (i.e., customers who have not switched to a competitive supplier).<sup>93</sup> The resulting supplier obligation is expressed as a percentage of SSO customer load, which includes all retail customers taking SSO. Supply obligation blocks represent 1% of load offered, which ranges from around 30 MW for

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<sup>92</sup> “AEP Ohio Competitive Bidding Process 1<sup>st</sup> and 2<sup>nd</sup> Auctions under ESP III.” *NERA Economic Consulting & AEP Ohio*. Web. March 23, 2015.  
<<http://www.aepohiocbp.com/assets/files/1st%20&%202nd%20ESP%20III%20Auctions%20Bidder%20Information%20Webcast%203-23-2015%20FINAL.pdf>>

<sup>93</sup> “Bidding Rules for the FirstEnergy Ohio Utilities’ CBP Auctions.” *CRA International*.  
<[http://www.firstenergycbp.com/Portals/0/SupplierDocuments/Bidding\\_Rules\\_20140623.pdf](http://www.firstenergycbp.com/Portals/0/SupplierDocuments/Bidding_Rules_20140623.pdf)>, page 2.

AEP<sup>94</sup> to 110 MW for FirstEnergy companies.<sup>95</sup> The products procured range from one to three year terms.

As a witness on behalf of AEP Ohio testified before the Public Utilities Commission of Ohio (“PUCO”), the reason for switching to full requirements is that the full requirements product contributes to the goal of maximizing participation in the Competitive Bidding Process (“CBP”). The full requirements product, as compared to an energy-only product, expands the field of potential competitors to include not only generation portfolio owners but also financial players, marketers, or traders that do not have a physical asset base in PJM. All of these various entities are able to use specialized skills to manage and price the risks associated with SSO supply. Entities that do not have an asset base in PJM can assemble financial or virtual wholesale portfolios and compete in the auction. In particular, PUCO does not want the format of the CBP auction and the definition of the SSO product to prohibit the participation of any one generation supplier.<sup>96</sup>

**Methodology:** The procurement methodology is similar to that of Pennsylvania (for First Energy utilities) and New Jersey, but the auctions are held separately for each utility unlike in New Jersey. The auction format is a simultaneous, multiple-round, descending-price clock format. The number of rounds for the auction is determined by the closing rule for the auction. All products are bid on simultaneously in the auction during bidding rounds. Prices are announced for the products prior to each bidding round. During a bidding round, a bidder submits (for each product) the number of tranches it would supply at the product’s announced price. An important rule is that a bidder cannot reduce the number of tranches it bids on a product if the product’s announced price does not fall from one round to the next; the bidder can only maintain or increase the number of tranches it bids on the product.<sup>97</sup>

**Results:** For the January 2015 First Energy auction, there were 8 registered bidders, of which 6 won tranches in 16 rounds in the auction. AEP Ohio’s April and May 2015 auctions attracted 13 registered bidders, with between 5 and 7 winners for the different products.<sup>98</sup> The participation

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<sup>94</sup> “AEP Ohio Competitive Bidding Process 1<sup>st</sup> and 2<sup>nd</sup> Auctions under ESP III.” NERA Economic Consulting & AEP Ohio. Web. March 23, 2015.  
<<http://www.aepohiocbp.com/assets/files/1st%20&%202nd%20ESP%20III%20Auctions%20Bidder%20Information%20Webcast%203-23-2015%20FINAL.pdf>>

<sup>95</sup> Auction manager announcements. Web. <<http://www.firstenergycbp.com/News.aspx>>

<sup>96</sup> “Ohio Power Company’s Electric Security Plan- Testimony of Company Witness LaCasse.” Web. December 20, 2013. <[http://aepohiocbp.com/assets/files/ESP%20III%20Application%20\(Book%20\).pdf](http://aepohiocbp.com/assets/files/ESP%20III%20Application%20(Book%20).pdf)>, page 10.

<sup>97</sup> “Bidding Rules for the FirstEnergy Ohio Utilities’ CBP Auctions.” CRA International.  
<[http://www.firstenergycbp.com/Portals/0/SupplierDocuments/Bidding\\_Rules\\_20140623.pdf](http://www.firstenergycbp.com/Portals/0/SupplierDocuments/Bidding_Rules_20140623.pdf)>, page 11.

<sup>98</sup> AEP Ohio Previous Auction results. Web. <http://aepohiocbp.com/index.cfm?s=background&p=previousResults>

levels were similar to previous years. Figure 18 presents the results from FirstEnergy and AEP's latest auctions.

**Figure 18. Ohio utilities 2015 SOS procurement results**

Auction	First Energy (January 2015 auction)	AEP (April 2015 auction)			AEP (May 2015 auction)		
Supply period	June 2015 - May 2016	June 2015 - May 2016	June 2015 - May 2017	June 2015 - May 2018	June 2015 - May 2016	June 2015 - May 2017	June 2015 - May 2018
Clearing price (\$/MWh)	\$69.18	\$53.79	\$53.51	\$55.58	\$55.42	\$54.70	\$56.35

### 3.8 Pennsylvania

**Introduction:** Under the Electricity Generation Customer Choice and Competition Act, the electric power that is procured to meet SOS (or “Default Supply” as it is known in Pennsylvania) load can include a prudent mix of spot market purchases, short-term contracts, long-term purchase contracts of more than 4 and not more than 20 years. Long term contracts cannot constitute more than 25% of projected load absent a Pennsylvania Public Utility Commission determination that good cause exists for a higher percentage to achieve least cost procurement.<sup>99</sup>

In Pennsylvania, the default service regulations became effective on September 15, 2007.<sup>100</sup> Through the current auction process, electric utilities seek to procure full requirements default supply generation service for their default service customers.<sup>101</sup>

**Products procured:** Although regulation allows for the SOS supply to be procured via spot market purchases, short-term and long-term contracts (which could be different between different utilities), full requirements service is the main product that utilities procure. A full requirements contract requires a supplier to provide energy, capacity, ancillary services, and any other services or products necessary to serve a specified percentage of default service load 24 hours a day, for the term of the contract.<sup>102</sup> Transmission service, especially network integration transmission service is also included. Default service suppliers assume all

<sup>99</sup> “Default service procurement and implementation plans.” *Commonwealth of Pennsylvania*. Web. <<http://www.pacode.com/secure/data/052/chapter54/subchapGtoc.html>>

<sup>100</sup> David B. MacGregor, Anthony D. Kanagy. *Default Service in Pennsylvania*. <<http://www.postschell.com/site/files/557.pdf>>, page 5-6.

<sup>101</sup> “Default Service Program Auction Process.” *FirstEnergy's Pennsylvania Default Service Program*. Web. <<http://www.fepaauction.com/>>

<sup>102</sup> Petition of Duquesne Light Company For Approval of Default Service Plan For the Period June 1, 2015 Through May 31, 2017. <[https://www.duquesnelight.com/POLRVII/Duquesne\\_POLR\\_VII\\_Petition.pdf](https://www.duquesnelight.com/POLRVII/Duquesne_POLR_VII_Petition.pdf)>, page 3.

responsibilities of a PJM load serving entity (“LSE”), including all PJM administrative expenses and any other services or fees as required by PJM of an LSE.<sup>103</sup>

Under the PECO Energy Company’s (“PECO”) third Default Service Program (“DSP”), approximately 96% of the supply is in the form of a mix of one-year and two-year fixed-price full requirements contracts. 40% of this portion of the supply portfolio comprises one-year products and 60% comprises two-year products. The remaining 4% of the default service supply portfolio for the residential customer class consists of a mix of long-term products and spot purchases.<sup>104</sup>

FirstEnergy utilities, on the other hand, acquire 6-month or 12-month products in four solicitations in 2015 and 2016.<sup>105</sup> The Pennsylvania procurement mechanism therefore results in laddered contracts but the shorter contract terms when compared to Delaware results in a higher rate of change of supply costs for the SOS providers.

**Methodology:** In general, default service load is divided into identical units/tranches, each representing a defined percentage of default service load.<sup>106</sup> The PECO bid formats allow participants to submit a single fixed price per tranche for the duration of the contract term and selects the lowest bids from qualified participants submitted as part of the RFP (sealed-bid RFP process), as opposed to using an auction process. Conversely, FirstEnergy utilities rely on a simultaneous, multiple-round, descending-price clock. All products are available to bid on simultaneously in the auction. An important rule is that a bidder cannot reduce the number of tranches it bids on a product if the product’s announced price does not fall from one round to the next; in this case, the bidder can only maintain or increase the number of tranches it bids on the product.<sup>107</sup>

**Results:** Participation levels are not available for the latest auctions in Pennsylvania for the reviewed utilities. However, the auction results were approved by the Public Utilities

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<sup>103</sup> “Bidding Rules For Fixed-Price and Hourly-Priced Auctions To Procure Default Service Products Under Default Service Program DSP-III.” *CRA International*. Web.  
<[http://www.fepaauction.com/Portals/0/Documents/SupplierDocuments/FEPA\\_DSPIII\\_Bidding\\_Rules.pdf](http://www.fepaauction.com/Portals/0/Documents/SupplierDocuments/FEPA_DSPIII_Bidding_Rules.pdf)>, page 2.

<sup>104</sup> “Petition of PECO Energy Company Before the Pennsylvania Public Utility Commission.” PECO Energy Company. Web.  
<<https://www.peco.com/CustomerService/RatesandPricing/RateInformation/Documents/PDF/DSP%203/Cover%20Letter%20and%20Petition/Petition.pdf>>

<sup>105</sup> “Independent Evaluator’s Post-Auction News Release.” *CRA International*. Web. June 24, 2015.  
<[http://www.fepaauction.com/Portals/0/Documents/Post\\_Auction\\_News\\_Release\\_20150624.pdf](http://www.fepaauction.com/Portals/0/Documents/Post_Auction_News_Release_20150624.pdf)>

<sup>106</sup> *Ibid*, page 3.

<sup>107</sup> *Ibid*, page 12.

Commission<sup>108,109</sup> so the competition level has been deemed adequate. Figure 19 presents the weighted average winning bid prices for the different products procured in PECO's March 2015 procurement auction for residential and small commercial SOS load.<sup>110</sup>

**Figure 19. PECO March 2015 residential and small commercial SOS procurement results**

Class	Residential				Small Commercial
Supply period	June 2015 - Nov 2015	June 2015 - May 2016	June 2015 - Nov 2016	June 2015 - May 2017	June 2015 - May 2016
Weighted average winning bid price (\$/MWh)	\$60.75	\$65.93	\$64.52	\$66.43	\$68.60

Figure 20 illustrates the weighted average winning bid prices for the FirstEnergy companies<sup>111</sup> in their April 2015 procurement.<sup>112</sup>

<sup>108</sup> Secretarial Letter accepting the April 2015 solicitation results for First Energy companies.  
<[http://www.fepaauction.com/Portals/0/Documents/Secretarial\\_Letter\\_20150415.pdf](http://www.fepaauction.com/Portals/0/Documents/Secretarial_Letter_20150415.pdf)>

<sup>109</sup> Secretarial Letter accepting the March 2015 solicitation results for PECO Energy Company.  
<[http://www.pecoprocurement.com/assets/files/PECO%20RFP\\_March%202015%20Solicitation%20Secretarial%20Letter.pdf](http://www.pecoprocurement.com/assets/files/PECO%20RFP_March%202015%20Solicitation%20Secretarial%20Letter.pdf)>

<sup>110</sup> March 2015 Solicitation Press Release, PECO. Web.  
<<http://www.pecoprocurement.com/index.cfm?s=background&p=previousResults>>

<sup>111</sup> Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, West Penn Power Company.

<sup>112</sup> April 2015 Post-auction News Release, FirstEnergy. Web.  
<[http://www.fepaauction.com/Portals/0/Documents/Post\\_Auction\\_News\\_Release\\_20150415.pdf](http://www.fepaauction.com/Portals/0/Documents/Post_Auction_News_Release_20150415.pdf)>

**Figure 20. First Energy Companies April 2015 residential SOS procurement results**

Class	Residential	
Supply period	June 2015 - May 2016	June 2015 - May 2017
Met-Ed	\$66.53	\$66.44
Penelec	\$62.37	\$63.16
Penn Power	\$77.45	\$69.93
West Penn Power	\$61.06	\$60.11

### **3.9 Comparison of DPL SOS procurements with processes in other jurisdictions and key takeaways**

A key observation from earlier sections is that DPL and all of the utilities reviewed in earlier sections currently rely on competitive solicitations (RFPs) or auctions to procure electricity supply for their residential and small commercial/industrial SOS customers. Illinois utilities procure energy blocks, while all others procure full requirements service, which may or may not include renewable obligations.

Very few of the utilities reviewed rely on alternative procurement methods, even for a portion of their loads. The exceptions include: (i) Illinois utilities that must supplement their fixed energy block procurements with spot market transactions for load-following; (ii) PECO in Pennsylvania, which procures very small quantities (less than 5% of requirements) from long-term contracts and spot market purchases (with the rest, approximately 95%, being procured as FRS through competitive solicitations); and (iii) CL&P in Connecticut, which is authorized to self-manage 20% of its Standard Service load using a mix of physical and financial products.

The products procured through competitive bidding are all variations of the FRS product, except for Illinois utilities that procure fixed on-peak and off-peak energy blocks. The terms for contracted supply range from 6 months to three years, with some utilities procuring SOS supply for multiple terms in the same auction, such as in Connecticut, Maryland, Ohio and in Pennsylvania.

Results from the latest auctions indicate that while participation declined for auctions in Delaware, Maryland and D.C., participation remained steady in auctions held in New Jersey, Ohio and Illinois. It is interesting to note all these jurisdictions are located in the PJM footprint and thus were subject to the uncertainty surrounding the capacity market rules (except for Illinois which is procuring an energy-only product). Therefore, other factors may have played a role in the declining participation to the DPL auctions and those of Maryland and D.C.

### 3.9.1 Methodology and Format

CL&P in Connecticut is the only reviewed utility which relies on a procurement method other than competitive solicitation to satisfy a portion of its SOS load. It has the authority to self-manage 20% of the SOS load by using a mix of physical and financial products. While this construct might result in slightly higher rate volatility within the self-managed slice, Connecticut's Public Utilities Regulatory Authority ("PURA") acknowledges that the expected unit cost for this portion is expected to be lower than the 80% supplied via RFP for FRS. Therefore, on a total portfolio basis (with self-management provisions), there may be a small decrease in expected cost accompanied by a slight increase in customer rate volatility.<sup>113</sup>

Otherwise, all utilities examined in this Section 3 rely on a competitive bidding process to procure SOS supply, albeit using different constructs (formats) and varying terms. New Jersey, Pennsylvania and Ohio utilities use a descending-clock auction type of process, while others rely on sealed-bid offers through an RFP to select the least expensive portfolio of suppliers that will meet their requirement. Delaware relies on a reverse-auction construct, which in essence is a separate descending-clock auction for each auctioned block of load.

Both the descending clock auction format (where there is a single clearing price for a product) and the reverse auction format (where there are separate clearing prices for each of the blocks offered for a given product) allow bidders to get market information as the auctions progress.

AEP Ohio justified adopting the descending clock auction format because it decreases the uncertainty faced by bidders when compared to an RFP format, where bidders submit a single bid and do not have the opportunity to adjust their bids on the basis of information from competitors regarding the value of the opportunity. The added transparency and information-sharing features were also used as a basis for Delaware's decision in 2008 to move to an auction format.

Most utilities rely on two auctions per year to procure the SOS supply. Exceptions include one utility in Maryland (which has four auctions per year); Connecticut utilities (which hold up to four auctions per year); and the New Jersey BGS auction, which is held once per year (and covers all utilities in the state). Holding multiple separate auctions within a year has the benefit of reducing exposure for the consumers to market conditions at any given moment. However, holding multiple auctions also involves additional administrative costs for the utilities, and has the effect of reducing the quantity of blocks available for bid during each auction, potentially reducing bidder interest.

In some states such as Maryland, New Jersey and Illinois, where multiple utilities provide SOS to consumers, the competitive bidding process is held simultaneously and under identical rules

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<sup>113</sup> Final Decision. *PURA Docket 12-06-02*.

<<http://www.dpuc.state.ct.us/dockhist.nsf/8e6fc37a54110e3e852576190052b64d/1e131cb621d4643585257c0e004f6203?OpenDocument>>

for all utilities. This has the potential of increasing interest from potential suppliers as the aggregate amounts of load offered for auction are greater than if each utility held a separate auction. Furthermore, the administrative efforts involved for both the utilities and the potential suppliers are reduced. As such, a single qualification package allows suppliers to place offers for supply to multiple utilities participating in the simultaneous process.

Conversely, separate auctions by the different state utilities offering SOS to consumers as well as states with a single utility and a lower load might see decreased interest from potential suppliers. In addition as the options increase for potential SOS suppliers (more auctions) and differences arise in terms of participating rules, SOS suppliers may choose to not participate in those competitive processes that have more onerous requirements for qualification in order to trim their administrative efforts. DPL therefore needs to be mindful of other competitive procurements which may be attracting SOS suppliers away from its SOS auctions.

Finally, some jurisdictions allow bidders more granularity than others in the fixed-price offers submitted as part of the procurement process. For instance, Illinois, Connecticut and Massachusetts utilities allow bidders to specify monthly prices; DC, Delaware and Maryland utilities allow bidders to submit seasonal prices; and New Jersey, Ohio and Pennsylvania utilities mandate a single fixed-price offer which is valid throughout the entire delivery period. In all cases, the load-weighted average price over the delivery period is the criterion used to select winning bids. As a general rule, the more granularity offered to bidders reduces their risks as load variations from forecast values are remunerated at a price more representative of the specific period. If however the prices paid to supplier are valid for periods shorter than the period at which SOS rates are revised, load deviations from forecast values introduce discrepancies between the payment to suppliers and earnings from SOS customers.

### **3.9.2 Product**

Utilities in Connecticut, D.C., Delaware, Maryland, Massachusetts, New Jersey, Pennsylvania, and Ohio procure some variation on the FRS product. This product includes energy, capacity, ancillary services, electrical losses, and other ISO fees; it may or may not include NITS and RECs or renewable attributes. While Ohio utilities now procure FRS products through an auction, one of them recently switched to procuring FRS instead of an energy-only product. As detailed in Section 3.7, the switch was justified in order to expand the base of potential competitors to those that do not have an asset base in PJM. The experience of the Ohio utility suggests that SOS suppliers are more interested in providing an FRS (where also perhaps the profit margin is greater, given higher risks) than more standardized energy product. Illinois on the other hand has made the exact opposite argument by electing to procure fixed-quantity, energy-only blocks - especially if the other elements are less material and readily procurable from the wholesale market by the load serving entity.

RECs or renewable attributes are required as part of the FRS product in DC, Maryland, New Jersey, and Connecticut (and were required in Delaware until 2008). This product is quite different than other components as it must come from specific renewable energy resources that qualify under the state's RPS. As a result, potential suppliers do not necessarily possess RECs in their supply portfolios. For instance, potential suppliers that own generation that does not

qualify under the different states' RPS can provide energy, capacity, or ancillary services from their own resources, but must acquire RECs from spot markets or other contracts in order to provide FRS that requires such RECs. Furthermore, RECs must be acquired through bilateral transactions as there is no single centralized market and prices can be volatile. As such, suppliers are likely to include a risk premium in their offer of FRS to account for variation in REC prices over the term of a multi-year contract for SOS supply. Most utilities recognize the situation and have unbundled the REC product from their definition of the FRS product.

As discussed, Illinois utilities stand out from the other utilities examined. They procure a set amount of fixed quantity energy blocks of monthly duration for both the on-peak and the off-peak periods up to three years in the future, which corresponds roughly to the forecasted load profile over that period. This construct leaves some risk with the ratepayers, as spot market transactions (sales/purchases) must be made to procure additional energy (or sell surplus energy) that sculpts to the actual load profile to the contracted supply profile. While this construct leaves a certain price volatility risk to consumers, the IPA procurement plan asserted that switching to a FRS product – i.e. to transfer all price and volumetric risks to SOS suppliers – comes at a cost (in the form of a risk premium incorporated in winning bids) to supply load-following products. As the product is energy-only and of fixed quantity, it involves fewer risks for suppliers than a FRS product (the risks associated with capacity and load-following are borne by the BGS provider). As a result market uncertainty will affect FRS procurements more than the energy products procured in Illinois.

### **3.9.3 Contract term**

Contract terms for SOS supply vary significantly among all the utilities reviewed. At one end of the spectrum, Illinois utilities award one-month contracts for on-peak or off-peak energy (albeit up to three years in the future). Other utilities in Delaware, Maryland, D.C. or New Jersey award supply contracts on a yearly basis for quantities equivalent to one third (or half, in the case of Maryland) of their SOS load and for durations of three years (two years, in Maryland). Finally, utilities in Pennsylvania and Ohio procure a mix of products through their auctions with varying contract terms, ranging from 6 months to three years.

Shorter contract terms have the benefit of reducing risk for potential suppliers when offering SOS supply at a fixed price, which could lower the resulting prices. Potential suppliers must consider their forecasted costs of supplying SOS service over the life of contract. The longer that term, the harder it is to forecast costs accurately, which results in a greater risk premium built into potential suppliers' offers. This is particularly true in the context of uncertainty regarding market rules. Recent uncertainty surrounding PJM's capacity market rules is a relevant example.

Furthermore, since supplier costs (for marketers) or opportunity costs (for suppliers owning generation assets) depend on actual electricity market prices (as well the cost of fuel for coal-, oil- or gas-fired generators), it is usually easier to financially hedge these costs for shorter terms. As such, liquidity in the financial markets is greater for shorter-term transactions. The ability to lock-in costs greatly reduces the risk for suppliers, increasing their interest in offering SOS supply. On balance, shortening the contract term as well as the time between a procurement

date and the start of the delivery term reduces the cost of forward hedges and various financing costs that suppliers must cover, and therefore could contribute to lower prices for consumers, albeit more volatile.

Shorter contract terms will also result in SOS rates which more closely match wholesale markets, and therefore be comparable to offers from competitive retail suppliers. Long-term contracts, by delaying the impact of wholesale price fluctuation on SOS rates, result in a divergence from wholesale market conditions and might obstruct retail market development.







However, on the flip side, longer term commitments to SOS suppliers are viewed generally in a positive vein by these suppliers, as they help SOS suppliers better plan out their portfolios and provide a pathway for financing investments and continued operations of physical assets.



Shorter term contracts also increase volatility of prices for consumers relying on SOS from utilities. Since shorter contracts must be renewed more frequently, a greater percentage of a utility's supply portfolio must be renewed on a yearly basis when compared to a supply portfolio relying on longer-term contracts. Overall costs of SOS supply will therefore exhibit greater volatility depending on market conditions at the time auctions are held.

Some utilities in Connecticut, Maryland, Ohio, and Pennsylvania possess supply portfolios containing products with varying contract terms. A combination of one-, two- or three-year contracts has the advantage of averaging the risk tradeoffs between short-term contracts (lower cost due to reduced supplier risk but greater price volatility) and longer-term contracts (higher cost due to increased supplier risk but reduced price volatility). Moreover, this construct could attract greater participation in the auctions as potential SOS suppliers may have different preferences for FRS supply contract terms.

Figure 21 summarizes the impacts of contract length on results of the procurement processes as discussed above.

**Figure 21. Impacts of contract term on procurement results**

Contract length	Price stability	Risk to suppliers	Foster competitive retail market
Longer term			
Shorter term			

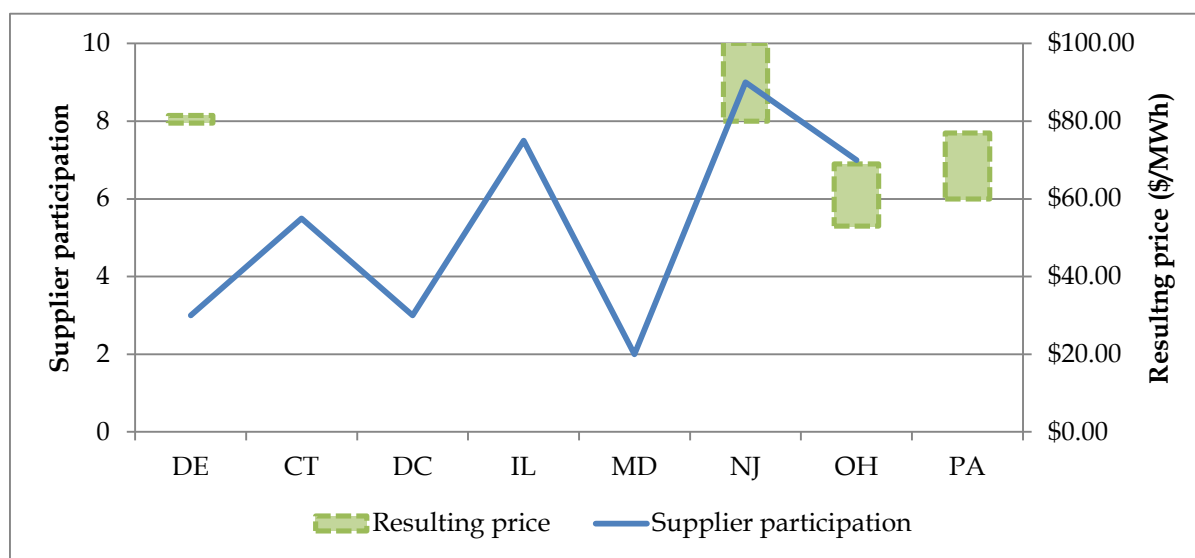
 arrow implies an increase in the corresponding effect  
 arrow implies a decrease in the corresponding effect

### 3.9.4 Results

Price outcomes and participation rates – two key results from procurement auctions – vary significantly between the different jurisdictions as utilities procure slightly different SOS supply products (even if product is “defined” the same in principle, risks from markets may be different, including congestion risk or load migration risk) at different points in time and/or for different contract terms. Furthermore, LEI has noted that some PJM states have different objectives in terms of cost to consumers versus volatility of prices paid for such FRS products. For instance, at one end of the spectrum, Massachusetts utilities procure supply under one-year contracts (using a ladder approach with one half of the load auctioned every 6 months) to ensure that BS rates follow the underlying cost of electricity in the wholesale markets. At the other end, utilities in Delaware and New Jersey procure supply for three year terms to provide for price stability.

The ultimate cost of SOS (or its equivalent) supply will be driven by the market conditions specific to the regions where the consumers (load) are located. These specific market conditions may include higher or lower energy or capacity prices than in neighboring regions because of transmission constraints, the quantity and type of generation resource within the region, and/or access to natural gas. In addition, load migration may vary too, depending on the specific state incentives for retail competition and other factors. Figure 22 presents the competitive solicitation results – in terms of number of participation and resulting prices – for the eight state jurisdictions reviewed in this section of the report, based on data available for the latest competitive procurements.

**Figure 22. Procurement auction results across different jurisdictions for most recent auctions**



Note: Participation includes number of participants or number of winners, as noted earlier in Figure 16 – information for both participants and winners was not available for all jurisdictions. The graph in the figure above represents the average number of participants across auctions held by various utilities in the same jurisdiction.

DPL's latest procurement process (in 2014-2015) resulted in an average cost of supply of approximately \$82/MWh. Among states that publish results from their procurement processes, the cost for utilities in Pennsylvania from its 2015 auctions is in the range of \$60/MWh to \$66/MWh (except for Penn Power, whose cost is higher, in the range of \$70/MWh to \$77/MWh for the same products as other FirstEnergy companies). Pennsylvania utilities procure FRS products for six month, one year or two year terms.

In New Jersey, the clearing price from the 2015 BGS auction resulting in costs of supply to the state's utilities in the range of \$80/MWh to \$100/MWh (the FRS product in New Jersey includes renewable attributes, which represents an additional premium in costs and is for a three year term).

In Ohio, the AEP procurement process yielded supply costs in the \$53/MWh to \$56/MWh range, while the FirstEnergy companies have supply costs of around \$69/MWh, all for a mix of one-, two- and three-year contracts.

While it would appear that DPL finds itself on the higher end of the costs of SOS supply as compared to a sample of other PJM utilities, the underlying cost of energy in the PJM wholesale market is also higher in the DPL zone when compared to other zones or the Western Hub trading index. This is because of congestion in the transmission interfaces delivering power into the zone from the rest of the PJM control area.

Participation levels in recent auctions are a good indicator of the robustness of competition and thus potential for competitive outcome of the procurement process. As has been discussed previously, utilities in Delaware and Maryland reported a drop in participation, with only a few suppliers offering to serve RSCI load in the latest auctions. Similarly, the latest auction in D.C. saw only three suppliers participating.

New Jersey's February 2015 auction ended with nine suppliers winning portions of the four participating utilities' residential and small to medium business load. That number is consistent with the number of winners from past auctions. However, New Jersey's Board of Public Utilities approved a provision to allow bidders in the February 2015 BGS auction to pass through incremental capacity costs following the introduction of CP resources in the PJM capacity market<sup>114</sup>. Therefore, auction participants in New Jersey did not face the same risks as in other PJM jurisdictions.

FirstEnergy's January 2015 auction in Ohio resulted in eight registered bidders and six different winners, while AEP Ohio's auction resulted in six different winners for each of the one-, two- and three-year products offered. These numbers are also consistent with participation levels from previous years.

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<sup>114</sup> NJ Board of Public Utilities Acts to Protect Integrity of Basic Generation Service Auction, *New Jersey Board of Public Utilities*, November 2014 < <http://www.state.nj.us/bpu/newsroom/2013/pdf/20141121b.pdf> >

Finally, after the spring 2015 solicitation, Illinois' utilities reported nine successful bidders in the Ameren procurement and six successful bidders in the ComEd procurement. These results are also in line with results from previous years.

Uncertainty over the new PJM capacity performance resource rules has been directly credited with the decline in participation in Maryland's latest auction by the chairman of the Maryland PSC.<sup>115</sup> However, other factors may also play a role in the declining participation in the competitive processes for Delaware, Maryland, and D.C.

Contract terms vary among jurisdictions that experienced lower than usual participation (three years for Delaware and D.C. and one to two years in Maryland) and also among jurisdictions where participation remained steady (three years for New Jersey and one, two or three years in Ohio). Therefore, this particular characteristic of the FRS product does not seem to have played a significant role in suppliers' decision to participate in the auctions.

Similarly, auction timing varied among the utilities that experienced low participation (participation levels observed from October 2014 to February 2015 in Delaware, Maryland and D.C.) or steady participation (January to May 2015 for Ohio and New Jersey auctions). Furthermore, block sizes also varied (and as such, there was no concrete trend) among utilities that did not experience a decline in participation (with obligations representing around 30 MW PLC for AEP in Ohio and around 100 MW for FirstEnergy companies in Ohio and all New Jersey utilities). It is also worth noting that the overall load offered for auction is much higher in NJ and Ohio than in Delaware (NJ has a peak load almost 10 times greater than Delaware, and Ohio almost 15 times greater).

One common characteristic among utilities that sought capacity as part of the FRS but did not experience a decline in participation is the descending clock auction procurement format (used in Ohio and New Jersey), as opposed to the reverse auction mechanism used in Delaware and sealed-bid RFP process used in Maryland and D.C.

It may be difficult to isolate the exact cause for sustained interest in some procurement processes, while others experience a decline in participation. As such, the cause may be a combination of different factors. Some other reasons unrelated to the procurement process, such as locational volatility of energy markets in specific territories, may have also played a role in the level of participation to the procurement processes for the reviewed utilities.

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<sup>115</sup> "Re: Effect of PJM's Capacity Performance Proposal on Maryland's Standard Offer Service Auction." *Maryland Public Service Commission*. Web. October 30, 2014. <<http://www.pjm.com/~media/committees-groups/committees/elc/coalition-briefing-papers/ex-parte-md-psc-letter-to-the-pjm-board.ashx>>

## 4 Economic assessment of alternative procurement models

Procurement of full requirements service using competitive auctions is just one of the many approaches available to DPL for servicing its obligation. Legislation affords DPL significant flexibility, as discussed in Section 2.1. Other approaches include alternatives to procurement of FRS (for example, competitive procurement of block offers), bilateral contracting for FRS or an alternative product, or wholesale spot market purchases. In addition variations in auction design/format can also be considered (for example, sealed bid RFP versus open auction) and indeed, DPL has experience with both formats. In addition, there may be further modifications to the product and/or auction characteristics that could improve SOS auction outcomes for DPL and its SOS consumers (including, but not limited to excluding capacity from the product, using a single auction clearing method of all the blocks, reducing/extending the term, increasing/decreasing frequency of auctions, etc.).

We have laid out a set of evaluation criteria that combine specific objectives enunciated by Delaware policymakers as well as metrics that would generically be used to evaluate policy, market rules and regulatory changes. The criteria include: (i) efficiency and consistency with competitive markets; (ii) balancing benefits and costs to ensure least costs to consumers; (iii) consistency with overall Delaware policies and goals; and (iv) ease of implementation. We discuss each of these criteria in Section 4.1.

Further, we have developed three levels of options, starting with broadest decision to be made – how to procure SOS, then stepping down to the auction/procurement format (sealed bid RFP versus open auction), and finally looking into various details of auction/product characteristics. These are discussed in further detail in Sections 4.2, 4.3 and 4.4.

LEI recognizes that there are multiple stakeholders engaged in the evaluation of SOS procurement in Delaware. Each option highlighted in the sections below will have advantages and drawbacks, depending on the perspective of evaluation. Additionally, it is important to recognize that there may be multiple objectives of various stakeholders in a procurement process, which may be in direct conflict. As such, we thought it would be useful to provide a description of the options and a preliminary evaluation of the options (without an assignment of a specific weight to each evaluation criteria). We recognize that this will not reflect certain participants' view on the relative importance of each criteria. Nevertheless, we hope that this will be a useful foundation then for a fulsome discussion at the stakeholder workshop.

### 4.1 Evaluation criteria

LEI proposes to use a set of evaluation criteria from which to assess DPL's current procurement methodology with respect to alternative approaches. These criteria were selected pursuant to best practices for analysis of any regulatory or market design initiatives/changes, and encompass Delaware-specific policy goals. The criteria will allow LEI to perform an objective analysis of DPL's current procurement mechanism, and compare it to alternative methods. The proposed criteria include:

1. **Efficiency and consistency with competitive markets** – the auction process can be considered efficient if it results in prices comparable to those in competitive wholesale markets for the products being purchased on auction. LEI's definition of wholesale markets is not limited to prices in PJM's spot market for energy. The wholesale market also includes bilateral contracts. Indeed, the PJM Independent Market Monitor reports that over 10% of real-time load was supplied by bilateral contracts in 2014.<sup>116</sup> As such, results from a solicitation for long-term power through a bilateral contract can be reflective of wholesale competitive markets if the solicitation was performed in a manner that allowed competition among potential counterparties.

Furthermore, this criteria should also address competitive retail markets, as that has been mandated in Delaware. Therefore, as part of this metric, we would consider the effect of a proposed change on the development of a competitive retail market within the state of Delaware.

2. **Balancing benefits and costs to ensure the least cost to consumers** – an efficient auction process needs to be transparent, such that it supports competition, minimizes risks and results in least cost to consumers that are commensurate with risks. OECD defines regulatory transparency as *the capacity of regulated entities to express views on, identify, and understand their obligations under the rule of law*.<sup>117</sup> Transparency in this context ensures that the procurer and sellers are each aware of the benefits and costs associated with participating in the auction. As such, potential suppliers should be able to factor such costs and benefits in developing their bids. Balancing of benefits and costs also means that the prices faced by consumers should be consistent with inherent risks and cost of supply.
3. **Consistency with overall Delaware policies and goals** - Delaware's policy goals emphasize stable prices at the lowest possible cost.<sup>118</sup> Furthermore, the procurement process should result in reliable supply of electricity both in the short and the long term.
4. **Ease of Implementation** – implementation of alternative procurement methodologies is already feasible in Delaware by the EURSCA Act of 2006, which allows flexibility to DPL in choosing its sources of supply (as long as 30% is procured through competitive RFPs or auctions). Notwithstanding the legislated flexibility, different procurement constructs, including different processes, formats, and product/auction characteristics can have varying levels of regulatory requirements or administrative burden(s) for the SOS provider or DPL, as well as different implementation costs.

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<sup>116</sup> PJM - 2014 State of the Market Report. March 12, 2015.

<sup>117</sup> OECD (2001) 'Flagship Report on Regulatory Quality'. PUMA/REG. 2001.

















<sup>118</sup> Delaware PSC Order 6746, 2005.

## 4.2 Options for procurement strategies

Procurement of FRS through an auction format is the method currently used in Delaware by DPL to meet its SOS obligation. The status quo has been discussed in detail earlier in Section 2. The sub-sections below discuss three additional procurement strategies available to DPL: (i) direct procurement from spot markets; (ii) using long term contracts; and (iii) owning generation. The figure below summarizes an initial evaluation of each of these strategies in light of the criteria laid out. This is not LEI's final recommendation, but rather a high-level, preliminary assessment of the various options based on LEI's current understanding of the SOS competitive process, PJM market conditions going forward, and case study analysis. LEI's preliminary evaluation is intended as a basis for an open discussion with various stakeholders at the upcoming technical workshop.

Given that the legislation allows DPL to use more than one procurement strategy, in light of the evaluation discussed below, LEI would like to elicit stakeholder feedback on consideration of a continuation of the current strategy versus switching to another strategy (including combination of strategies). LEI would like to have stakeholders present their view on the advantages or disadvantages of each approach relative to the criteria identified. LEI understands that various stakeholders will have different priorities and therefore likely place different weights on each of the evaluation criteria. LEI plans to consider all parties' stated priorities and preferences in its final report.

**Figure 23. Summarized evaluation of procurement strategies**

Procurement Options	Evaluation Criteria							
	Efficiency and consistency with competitive markets		Balancing benefits and costs to ensure least cost to consumers		Consistency with Delaware goals		Ease of implementation	
<b>Direct Procurement from spot markets</b>	Consistent with competitive markets; assists competitive retail markets by providing transparent opportunity costs		High transparency; market risk exists, although there are no additional risk adders to increase supply costs		Prices will reflect volatility in wholesale markets		Easy to implement; however, DPL will need trading desk, hedging strategy etc.	
<b>Long-term contracts</b>	Consistent with wholesale markets; can undermine competitive retail markets		Less transparent; less risky if contract is below market prices and vice versa; generators may be able to finance investments on favorable terms (cost savings can be shared with consumers)		Allows long-term supply at stable prices (as long as prices are not indexed to wholesale spot markets); may not be least cost		Easy to implement, although there is a cost for solicitation and managing the contract; DPL may also require additional procurement process for load following	
<b>Own generation (build/buy)</b>	Consistent with wholesale markets; reduces competitiveness of retail markets		Less transparent; higher risk than contracted generation due to operational risk; potential for lower operational costs (including capital costs) relative to spot market prices and long-term contracts		Allows long-term supply; operational cost may fluctuate		May be difficult; building new generation is time intensive; buying existing generation maybe simpler; DPL may also require additional procurement process for load following	
<b>Procurement of FRS (status quo)</b>	Consistent with wholesale markets; can be made consistent with retail markets depending on product characteristics		Transparent process; lower level of risk to consumers relative to other options		Stable prices with laddering in the status quo, but largely dependent on product characteristics		Easy to implement; DPL already has the process in place	

#### **4.2.1 Direct procurement from spot markets**

This strategy involves purchasing power directly from the spot market at the prevailing LMPs. A key characteristic of this strategy is that supply costs directly reflect underlying spot market electricity costs, without any additional risk adders, but with the inherent volatility of market prices. As a result, this approach for procurement of SOS would help spur competitive retail markets and switching (*ceteris paribus*). Furthermore, the exposure to wholesale prices may stimulate consumers to invest in energy efficiency measures and conservation. However, since the procurer directly interacts with the spot market and needs to manage the load in real time, additional administrative expenses may be incurred relative to competitive procurement processes.

As can be expected, this strategy exposes the retail customer to spot market volatilities. During periods of peak demand, supply shortages or both, spot prices can reach very high levels. Traditionally, spot market volatilities can be mitigated by hedging a part of the purchased portfolio using forward prices. However, this entails additional costs for development of a risk management plan and trading capabilities (with expert analysts/traders). We understand that DPL does not currently have such resources.<sup>119</sup>

Procurement from the wholesale markets is consistent with competitive markets because it essentially relies on the hourly “auctions” that PJM manages to determine the LMP for energy, as well as the other auctions the PJM runs for ancillary services and capacity. Such procurement also assists competitive retail markets as it creates a price to beat for retailers who are tracking their opportunity costs closely. As such, the volatility in LMPs creates incentives where consumers may like to switch from SOS to competitive retailers.

This approach is also transparent as wholesale market prices are public, albeit hedging strategies for spot market prices would have to be devised and subjected to PSC approval. When spot market prices are relatively low and static, both the customers and the suppliers benefit from clear, transparent purchase of low cost power. However, if spot market prices are high and volatile, customers are likely to face the volatility in prices associated with this strategy, and as such, this does not assist in meeting Delaware goals of stable prices.

#### **4.2.2 Entering into long term contracts with generators**

As a procurer, entering into long-term contracts with generators offers absolute certainty and transparency because these contracts specify both the quantity as well as the price that the generator is obligated to provide its services under the contract, assuming the contract price is not indexed to wholesale spot market prices.

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<sup>119</sup> Assuming the proposed merger of DPL parent company Pepco Holdings Inc. with Exelon goes through, DPL may have access to such resources through its affiliates. That said, functional separation between regulated and unregulated businesses of a holding company may restrict the transfer of knowledge and sharing of expertise.

Long-term contracts can be an effective method of procurement and can be consistent with competitive markets if the solicitation process for contracts is efficient, transparent, and ensures competition among potential bidders. At the same time, the process of developing a solicitation, negotiating an agreement and managing the contract can add costs to the SOS provider. However, given DPL has the requisite experience with current renewable generation contracts, this may not be a significant issue.

Long term contracts may result in a discrepancy between the contracted price (which in turn will affect the SOS rates) and the PJM's wholesale electricity market prices for certain periods, which may hinder the development of a competitive retail market and also violate Delaware's goal of least cost supply. Furthermore, care must be taken in selecting the right long-term resource so as to be consistent with Delaware's policies (for instance regarding renewable generation).

Long term contracts can arguably be advantageous for consumers if spot prices are expected to rise over the duration of the contract above the contract price. However, there is always a risk for both the buyer and seller in a long term contract arrangement, related to whether the contract will be priced lower or higher than realized spot market outcomes.

Another key advantage of long term contracts is that once in place, they can help new (or even existing) generators finance their plant investment on favorable terms (compared to no long term contract), and those cost savings could be shared with consumers.

Finally, if long term contracts are pursued, DPL may incur additional administrative costs (for example, for credit requirements under the contract and for managing the contract). This approach may also require additional procurement, if the contract does not specify load following service, to meet the full needs of SOS customers.

#### **4.2.3 Owning sources of generation**

Instead of procuring supply from spot markets or via long-term contracts, DPL has the option under current legislation to develop or buy physical generation, whose output could then be used to meet the SOS obligations. Such an outright ownership strategy has its strengths and weaknesses from the perspective of SOS consumers. If market prices are higher than the overall costs of operations (including capital costs), then consumers will be getting a lower price for the service than if they procured from the wholesale market. However, if market prices fall below the operating costs of the plant, then the plant may become a burden on consumers.

From the perspective of consumers, the ownership of generation by DPL is somewhat similar to entering into long term contracts with other generators. However, owning generation also carries with it certain risks, like operating risks, which become indirectly a burden on SOS consumers. A contract can be renegotiated or terminated, while generation ownership can cease only if the asset is retired or sold (which may happen at a loss if market conditions are not favorable). In addition, fuel and other variable costs associated with the plant can cause wide swings in per unit cost of generation (levelized cost of generation). Finally, regulatory changes,

market rules changes and environmental changes are additional sources of uncertainty that consumers would essentially take on if DPL were to buy or build its own generation.

However, similar to the potential relative advantage over spot market prices, if the costs of operations (including capital costs) of owned generation are lower than the contracted price under a long term contract (over the contract term), ownership may reduce costs for SOS consumers.

LEI acknowledges, however, that there are several considerations that need to be addressed when a regulated entity proposes to own generation assets. These include for instance practical considerations for the operation of the generating resources, market considerations for the purchase of fuel and sale of output from the resource, regulatory considerations related to the PJM market self-supply regulations or potential legal issues if the new resource is perceived as an attempt to suppress prices in the region.

### **4.3 Options for competitive procurement design/format**









As discussed in previous sections, competitive procurement can primarily be divided into two constructs:

- Sealed-bid RFPs; and
- Open auctions

In sealed-bid RFPs, bidders submit a single bid, without having any knowledge of their competitors' bids, and bidders typically do not have the opportunity to adjust their bids on the basis of new/competitor information. However, if the bidders expect sufficient participation, sealed bid formats can achieve competitive market outcomes and therefore result in an efficient market price. As such, if the bidders are sophisticated and understand how to price the product, and the product has common properties (which apply to FRS and energy products), their bids would reflect their own incremental or opportunity costs, and can result in least cost/competitive outcomes.

Open auctions, on the other hand, are more transparent than sealed-bid RFPs and help resolve some uncertainties around competitors' bids. As such, knowledge of competitors bids encourage participants to be more aggressive in their own bids, resulting in efficient and competitive outcomes. The caveat however is when participation levels are low, and results may not reflect true competition. As such, participants are made aware of low number of competitors in an open auction format, and could adjust their strategies accordingly. Figure 24 summarizes evaluation of the two auction formats in light of the criteria laid out in Section 4.1.

**Figure 24. Summarized evaluation of auction formats**

Procurement Format	Evaluation Criteria							
	Efficiency and consistency with competitive markets		Balancing benefits and costs to ensure least cost to consumers		Consistency with Delaware goals		Ease of implementation	
<b>Sealed bid RFI</b>	Competitive results possible with sufficient participation		Less transparent; level of risk depends on nature of product sought		Can provide reliable supply at stable prices (depending on product characteristics)		Straightforward to implement (DPL would need to revise process)	
<b>Open Auction</b>	With low participation (like in DE), potential for strategic bidding; with high participation, close to competitive price		More transparent; level of risk depends on nature of product sought		Can provide reliable supply at stable prices (depending on product characteristics)		Generally more complex than sealed bid; however easier in light of DPL's current process	

### 4.3.1 Sealed-bid RFPs

A sealed-bid process differs from an open auction in that there is no iteration, and no publication of bids prior to auction closure. Rather, qualified bidders simply submit sealed-bids, and the winners are chosen based on the lowest bid.<sup>120</sup>

The individuals or entities responsible for managing the RFP evaluate all the qualifying bids according to the criteria established before the auction and select the lowest bid, or a combination of the lowest bids, which satisfy the supply requirement. Normally, this process involves some prequalification criteria to ensure bidders meet the eligibility. In the context of electricity procurement, these prequalification criteria can be equivalent to compliance with FERC, NERC and regional, regulatory, legal or other mandates. The process is not as transparent as an open auction, as participants cannot observe the selection process.

The major advantage of this method is that it is straightforward and does not require significant infrastructure. The entity managing the RFP can usually implement the process themselves without relying on third party services (for example, an independent auction platform). It also prevents the bidders from observing their competitors' bids and acting strategically (particularly when the number of participants is low).

Sealed bid process can result in competitive outcomes, particularly when the commodity being procured has common value properties, and bidders anticipate sufficient participation in the procurement.

<sup>120</sup> When there are multiple assets for sale, sealed-bid auctions are generally categorized as discriminatory or non-discriminatory. In the former, each successful bidder pays its bid price. In a non-discriminatory auction each successful bidder pays a uniform price.

In the economic literature, a careful distinction is drawn between two forms of sales. *Common value sales* refer to those transactions in which each potential purchaser would place the same value on the goods if they held the same information. *Private value sales*, on the other hand, are those where different buyers would value the goods differently, even if they face common information. By way of example, sales of works of art are generally private value sales because different buyers will value the piece differently depending, in effect, on taste.<sup>121</sup> On the other hand, sales of commodities such as US Treasury Bonds or gold are common value sales since all bidders would place exactly the same value on the product if they were holding identical information.

As such, FRS and energy products have strong common value properties with a singular market value, and bidders have similar information when developing their bids. Bidders will then reflect their opportunity costs commensurate with their risks in the bids, and competitive/least cost outcomes can be achieved under sealed bid processes. Additionally, entities managing the RFP may set an upper bar/ceiling on the bids to ensure that the bids received are not too divergent from prevailing market prices.

#### 4.3.2 Open auctions

An open auction process is more transparent than sealed bid RFPs, as participants can observe the auction as it unfolds and rules are known in advance. Furthermore, for auctions with a single clearing price, all identical products are priced identically and suppliers receive the same revenue for the products. It is also relatively easy to implement, although less so than a sealed-bid RFP process, since an auction platform with clearing engine and auction rules is required. Also depending on the specific requirements of the auction and product, this may be costly to set up due to complexities. Eventually, if the process is complex to participate in, i.e., results in increasing overhead costs for participants, bidders may reflect such additional costs in their bids.

Within open auctions, one can implement ascending bid auctions or descending bid auctions. Ascending bid auctions (where price is successively raised until only one bidder remains) are not relevant for SOS procurement, and thus, we focus only on descending bid auctions. In the descending bid auction format, the procurer sets a reference price and invites price and quantity bids from qualified suppliers for below that reference price. If supply exceeds the quantity demanded, the procurer lowers the reference price in the next round of bidding until supply exactly matches the quantity demanded. As such, the procurer is able to choose a price and quantity combination that meets its requirements, which at the same time is least cost. This auction construct is usually referred to as a descending-clock auction.

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<sup>121</sup> Of course, a dealer seeking to sell the piece into a secondary market might see such an auction as common value. When assets such as whole firms are sold, private value arises from economies of scale and scope, which are generally bundled together under the heading of ‘synergies’.

As the bidders have complete information on the bids made by their competitors at the end of each round, they can optimize their bids to take into account strategic considerations.<sup>122</sup> When participation is low, however, the auction results may not reflect true competition as participants would be aware of the low bidding activity and could adjust their strategy accordingly. At present, DPL uses a variant of the descending bid auction design for its current procurement process, which is discussed below.

**Modified descending bid auctions (DPL's current auction design):** Instead of multiple rounds of bidding, DPL's current reverse-auction process divides the procurement amount into three blocks. Bidding for each block commences at the same time, but the bidding for the first block ends after 30 minutes, followed by the second block after 15 minutes, and the third block after another 15 minutes.

This version of the auction has the advantage of bidders learning from the results of the first block auction. The closing price (winning bid) of the first block informs the bidders that all things remaining equal, the closing price for the second block needs to be at least as low as the closing price for the first block. Conceptually, the closing price for the first block acts a reference price for the remaining blocks. However, the auction format suffers from the same drawback common to open auction where, when participation is low, auction results may not reflect true competition as participants would be aware of the low bidding activity.

This auction design has the benefit of informing the bidders, as well as DPL of the likely range for the winning price for the second and third blocks based on the reference price established by the first block.

By observing the timing of the bids received in the first block, evidence of 'sniping' can be determined. Sniping is the term given to bidding behavior typically observed in online auctions such as those on eBay, where some bidders deliberately wait until the last minute of the auction time to submit their bids.<sup>123</sup> Motivation behind such behavior includes: (i) preventing other bidders from learning about the strategic considerations behind the sniper's bid; and (ii)

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<sup>122</sup> The descending clock auction format (where there is a single clearing price for a product), and the reverse auction (as implemented by DPL where there are separate clearing prices for each of the blocks offered for a given product) allow bidders to get market information as the auctions progress.

<sup>123</sup> Ely, Jeffrey C., and Tanjim Hossain. 2009. 'Sniping and Squatting in Auction Markets'. American Economic Journal: Microeconomics, 1(2).

minimizing winner's curse<sup>124</sup> by providing the smallest reduction relative to the last bid received, since it is likely that the snipped bid will win.<sup>125</sup>

However, it is important to note that online auctions are different from the competitive auctions that DPL conducts. While the value of the auctioned item in online auctions is privately determined by the bidders, FRS and other energy products have strong common value properties, as discussed earlier.

#### **4.4 Auction/Product characteristics**

When relying on a competitive procurement process, the characteristics of the products sought have a significant influence on the outcome. Furthermore, as discussed in previous sections, price level and stability of price level will also be largely dependent upon the specific product characteristics (such as term) and auction procedures (such as timing of auctions relative to product term expiration to create laddering).

As such, this section lists the major product/auction characteristics in competitive procurement processes, as well as their eventual impacts on the suppliers and consumers. The figure below provides a summary of the key impacts.

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<sup>124</sup> Winner's curse refers to a phenomenon where the winner of an auction ends up overpaying because either the winning bid exceeds the value of the auctioned asset, or if the value of the asset is less than the bidder anticipated. This is most likely to occur in common value auction with incomplete information because average bid is most likely to accurately reflect the market value of the asset, but the winner necessarily has to pay more than average value (hence more than market value) in order to win. Source: Thaler, Richard H. 'Anomalies: The Winner's Curse'. Journal of Economic Perspectives. 1998.

<sup>125</sup> Ariely, Ockenfels and Roth. 'An experimental analysis of ending rules in internet auctions'. RAND Journal of Economics vol. 36(4).

**Figure 25. Impacts of product/auction characteristics on consumers and suppliers**

Product / Auction characteristics	Potential impacts on suppliers and consumers
Changing the auction timing	May be argued to encourage increased participation and less volatile results if held outside periods of higher volatility in wholesale markets; however, other states frequently conduct procurements in winter months and throughout the year
Increasing / decreasing the frequency of auctions	More auctions may reduce dependency on particular market conditions; at the same time, they would likely result in higher administrative costs for SOS provider
Increasing/decreasing the contract term	Longer term contracts favor rate stability at the expense of risk premium embedded in supplier offers, while shorter contracts lower risks for suppliers but impact rate stability
Combining different terms within the same auction	May average the impact on price levels and stability of different length contracts; also may increase participation in procurement process as potential suppliers may have different preferences for supply contract terms
Changing the block size	Larger block sizes may discourage smaller potential suppliers, while smaller block sizes may not be worth it for suppliers because of overhead costs
Parting out the components of FRS	FRS components other than energy are generally known/small components; procuring an energy-only product could lower administrative burden for suppliers
Procuring fixed quantities	Shifts the the volumetric risks on the SOS provider, but may allow participation from marketers not interested in physical deliveries
Using a single auction clearing price	Allows all identical products to clear at the same price, ensuring consistency for the suppliers. As such, both New Jersey and Ohio auctions have a single clearing price for all blocks (albeit with different prices for each utility).

**Changing the auction timing** – Delaware currently holds procurement auctions in December and February. Some other states (discussed in Section 3) also hold procurements in winter months, such as District of Columbia (December, January) and New Jersey (February). Other states hold procurements across the year, such as Connecticut (four procurements throughout the year) and Ohio (January, April and May). In recent years, the winter period has yielded high volatility for power prices as weather conditions have driven the cost of fuel and power prices to extremely high levels. Furthermore, short-term price fluctuations can drive changes in the forward markets that are not necessarily driven by market fundamentals. As such, it could be argued by some that the outcome of a procurement process held during such a period may be skewed by the level of prices at that time. When considering timing, care must also be taken to account for significant PJM events, such as capacity auctions or FTR auctions. Finally, the auctions need to be held relatively close to the start of deliveries so as not to create additional risks for the suppliers.

**Increasing/decreasing the frequency of auctions** – Hosting several auctions during the year has the advantage of spreading the market risks over several periods, thereby reducing reliance on market conditions at a specific point in time. However, an increased number of auctions translates into additional costs for the SOS provider. Also, reducing the amount of load offered in each auction may decrease the interest level of some suppliers in participating at all.

**Increasing/decreasing the contract term** – As discussed in previous sections, increasing the contract term may result in price stability (particularly with laddering), at the expense of a higher risk premium embedded in supplier offers. Conversely, a shorter term will result in supply costs that more closely reflect wholesale market conditions, at the expense of higher volatility in supply costs. Furthermore, the deviation of SOS rates from wholesale market prices caused by longer term contracts has the potential to hinder competitive retail markets.

**Combining different terms within the same auction** – Combining different term lengths within the same auction allows the SOS provider to average out the impact on price levels and stability of different length contracts. Furthermore, this method could increase participation in the competitive process as different potential suppliers may have different preferences for supply contract terms. At the same time, combining different terms may require additional/modifying auction rules to enable clearing for different terms, which may add a layer of complexity.

**Changing the block size** – The block size will determine the minimum supply obligation that a supplier can acquire through the process. As a result, too large a block size could discourage some of the smaller suppliers from participating (as one block could represent too large a risk). Conversely, smaller blocks could result in some large suppliers winning minimal supply obligations, potentially making it not worthwhile for them to participate, considering their overhead administrative expenses involved in participating in the procurement process and managing a load obligation. Based on our review of jurisdictions, we have observed successful auctions with both small (30 MW in Ohio) and large block sizes (100 MW in New Jersey).

**Unbundling the components of FRS** – FRS in Delaware is composed of energy, capacity, ancillary services and other ISO fees. As discussed previously, capacity costs are usually known in advance (absent regulatory uncertainty) and ancillary service & ISO fees are typically small. As a result, no added risk would be placed on the SOS provider if it were to procure an energy-only product through competitive bidding, and rely on the PJM markets for other components. In addition, similar to the experience observed in Connecticut, DPL could reimburse the difference between LMP congestion at the load location and at a major hub. In such a scenario, DPL would retain all ARR proceeds associated with the winning bidders' portion of the SOS load.

**Procuring fixed quantities** – Load-following FRS carries a volumetric risk as load profile varies over the course of a day, and customer migration to competitive retail providers may also affect the SOS load served by the SOS suppliers. Moreover, for longer term contracts, forecast errors can cause deviation in load served from the initial anticipated value. As a result, procuring fixed quantities of energy (instead of load-following service) may result in reduced cost of supply. Furthermore, using standard financial instruments to acquire fixed-block energy supply (instead of requiring physical delivery) may encourage participation from purely financial entities in the procurement events.

**Using a single auction clearing price** – Currently, the DPL reverse auction construct allows for different blocks (of the same product) to clear at different prices in a single auction. As such, each block has its own auction clearing process. While multiple rounds are useful for price

discovery, each block of the same product does not need to have its own clearing price. A single clearing price, on the other hand, would allow for the same product to clear at the same price, thus ensuring consistency for the suppliers. As such, both New Jersey and Ohio auctions have a single clearing price for all blocks (albeit with different prices for each utility). LEI would like to gather stakeholder views on the merits and drawbacks of a single clearing price for all blocks in an auction, which is determined after the last round.

At the upcoming workshop in September 2015, LEI is interested in gathering stakeholder feedback on the various options related to procurement strategies, procurement/auction format, and product/auction characteristics discussed in sections above.

#### **4.5 Suggested topics of discussion at the stakeholder workshop**

LEI has reviewed and assessed the characteristics of several supply procurement methodologies, including the FRS approach currently used by DPL. While the purpose of this paper is not to recommend changes in the SOS supply procurement process, we make a number of observations that suggest interesting avenues that can be evaluated in the next stages of procurement process review. The options that LEI believes are worth evaluating further can be divided into three categories or levels of consideration:

- Options around the procurement process itself;
- Options for the format of the procurement process for SOS service; and
- Options for revising the FRS product or specific features of the SOS procurement process (auction).

The first of the three levels of options presented above (and discussed in detail in previous sections) relates to the broad decision on the actual SOS procurement process. The second level discusses options of the auction/procurement format (sealed bid RFP versus open auction), and finally, the third level discusses options for different details of product and auction characteristics (such as excluding capacity from the product being procured, using a single auction clearing method of all the blocks, reducing/extending the term, increasing/decreasing frequency of auctions, timing of the auction etc.).

As a separate note, LEI understands that wholesale market electricity prices are higher in the DPL zone when compared to the rest of the PJM region. This is due to transmission constraints limiting the flow of energy into the zone. Consequently, additional transmission capacity into the zone could result in a reduction of wholesale market prices for the DPL zone. A reduction in congestion costs and associated volatility to the DPL zone would also reduce risks to some SOS suppliers that are more distant from DPL's service territory. This "option" does not neatly fit within the three levels or categories discussed above. Therefore, we discuss implications of new transmission separately in Section 4.5.4.

##### **4.5.1 Options for modifying the procurement process**

As discussed earlier in Section 3.9, competitive procurement of FRS has been the most widely adopted approach across many jurisdictions, albeit with varying procurement mechanisms

(sealed-bid RFP or open auction design). However, as specified in the EURCSA 2006 Act, competitive procurement using auctions is just one of several approaches available to the DPL. Other options that are already statutorily compliant include: (i) direct procurement from spot markets (and forward contracting); (ii) entering into long term contracts with generators; and (iii) owning (i.e. building or buying) sources of generation.

While retaining the competitive bidding process and FRS product to satisfy a portion of its load, DPL could consider using alternative supply procurement methods to satisfy the remainder of its SOS load. In fact, as discussed in the Appendix (Section 6.2), DPL has considered alternatives to its current auction-based procurement of full requirements service in the past – specifically, in the context of the 2010 and 2012 IRPs. These include options such as: (a) a 135 MW gas-fired CC plant located in Delmarva South, (b) a 150 MW onshore wind resource located in the PJM western region, and (c) a 150 MW offshore wind purchase. DPL has not implemented any of these alternatives.

As such, LEI would like to gather stakeholder feedback on consideration of a continuation of the current strategy versus switching to another strategy, including a combination of strategies. A combination of strategies could help balance multiple criteria that are otherwise conflicting, for instance low cost and price stability.

Admittedly, managing a diverse supply portfolio requires more resources than relying on an FRS product where the LSE obligations are shifted to the suppliers. Therefore, any savings resulting from an actively managed supply portfolio would have to be weighed against the increased costs and resources necessary to manage the portfolio.

Connecticut is an example of such an approach, where CL&P procures 80% of its supply through competitive RFPs and 20% of supply is self-managed. The expectation is that on a total

## **Balancing low costs and price stability is essentially a risk-reward tradeoff**

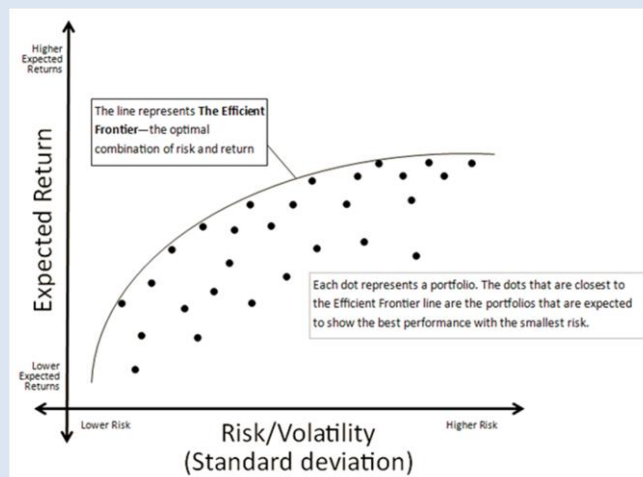
The underlying trade-off between risk and reward in the Modern Portfolio Theory (“MPT”) may be relevant as a conceptual “analogy” in explaining the potential for improving on the current circumstances for DPL’s SOS and finding a more optimal balance between low costs and price stability. For FRS design options, there are two criteria that are generally in direct conflict and stakeholders will need to trade-off between these. The two criteria are low price volatility (akin to lower risk under MPT) and low costs of supply (i.e., similar to higher expected returns under MPT).

MPT theory provides a systematic approach to rationalize between such choices. If we think of the SOS options as a choice of two portfolios with equal “returns” (i.e., the same expected costs of supply), then the choice with the lower risk profile (i.e., lowest volatility) should be preferred. The point of view of the SOS providers is complementary – they too would trade off for a lower risk option, if they were held to the same price.

The figure below is an example of an efficient frontier concept from MPT. The purpose of the efficient frontier is to show combinations of returns (prices) and risks (volatility) that maximize expected returns (i.e. minimize costs of SOS supply) while minimizing risk (i.e. minimizing price volatility). In order to compare various choices, it is necessary to assign an expected price level and expected volatility to each option. Each dot represents a portfolio and the line represents the efficient frontier or the optimal combination of risk and return. If DPL’s current approach is below the efficient frontier, then it is possible to better the situation. In corollary, DPL could optimize the balance between the criteria of low cost and price stability by pursuing multiple strategy options.

The Efficient Frontier provides an economic framework to visualize risk versus reward. For purposes of SOS evaluation, LEI does not propose to try to estimate the level of volatility or expected cost for each option at this stage. Rather, LEI would like to use the Efficient Frontier concept along with the rankings provided for each of the four criteria by various stakeholders to demarcate possible tradeoffs or the value of combinations.

**Figure 26. Illustration of MPT and the Efficient Frontier**



Source: (1) H Markowitz, *Portfolio Selection*, The Journal of Finance, Vol. 7, No. 1 (March 1952), pp 77-91 [https://www.math.ust.hk/~maykwok/courses/ma362/07F/markowitz\\_JF.pdf](https://www.math.ust.hk/~maykwok/courses/ma362/07F/markowitz_JF.pdf) (2) Modern Portfolio Theory and The Efficient Frontier. Web <http://www.smart401k.com/Content/retail/resource-center/advanced-investing/modern-portfolio-theory->

portfolio basis, there may be a small decrease in expected cost accompanied by a slight increase in customer rate volatility.

#### **4.5.2 Options for changing the procurement/auction format**

Competitive procurement formats can primarily be divided into two constructs: sealed bid RFPs versus open auctions (both discussed in detail in previous sections). While both formats can lead to competitive outcomes, open auctions are more transparent than sealed bids, and at the same time, open auctions can allow for strategic bidding (particularly when participation levels are low). LEI would like to gather stakeholder feedback on alternatives to the current reverse auction format, particularly in light of low bidder participation in recent auctions.

#### **4.5.3 Options for changing the FRS product characteristics**

As discussed previously, the product and auction characteristics may have a significant impact on the procurement outcomes including price levels and the extent of volatility faced by SOS customers.

For instance, soliciting supply for terms shorter than the current three years could decrease costs to customers through reduced risk (and in turn reduced hedging costs for suppliers), albeit at the expense of lower price stability. Alternatively, DPL could offer a mix of product terms to satisfy the different suppliers. Some suppliers may be averse to the increased risk from longer-term contracts, while owners of generation assets may look forward to locking in prices for longer periods. This however may add complexity to the auction clearing process.

In addition, while maintaining the FRS product as part of the SOS supply portfolio, changes to the current product parameters could encourage participation. For instance, procuring fixed quantities or separating different components of FRS may assist in reducing the risk to suppliers. This could potentially lead to increased participation/competition and decreased costs of supply for DPL.

Other characteristics discussed previously include changing the auction timing, increasing/decreasing the frequency of auctions, changing the block size, using a single auction clearing price etc. LEI would like to gather stakeholder views on each of these auction/product characteristics at the stakeholder workshop.

#### **4.5.4 Lowering the underlying cost of electricity in the DPL zone**

No matter what the procurement techniques, the cost of supply for SOS will in principle reflect the underlying PJM market conditions specific to the Delaware region. Due to transmission constraints, energy-related costs are higher in the Delmarva Peninsula than in the rest of PJM, and as such, the costs of supply to DPL consumers will reflect that premium, so long as there is transmission congestion.

Congestion between DPL zone and neighboring zones in New Jersey and Pennsylvania has been in range of approximately \$2.0 to \$4.5 per MWh.<sup>126</sup> Those other areas have access to cheaper resources located elsewhere in PJM, as compared to generation sited in the DPL zone, and the transmission is insufficient to get that lower cost energy to the DPL zone.

Furthermore, a reduction in congestion costs and associated volatility to the DPL zone would also reduce risks to some SOS suppliers that are more distant from DPL's service territory, and thus encourage greater participation in the procurement processes.

As a result, soliciting transmission projects whose costs could be recovered through regulated rates from benefiting consumers could help lower the costs of electricity in Delaware. Of course, a cost/benefit analysis would need to be performed to ensure the costs from the transmission do not outweigh the benefits in supply cost reductions.

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<sup>126</sup> Estimates based on three year historical average LMP differences between DPL and NJ-JCPL/Pennsylvania.

## 5 Next steps

In this report, LEI has reviewed the regulatory and legislative context in Delaware as well as the current method used by DPL to procure supply for its RSCI SOS customers. LEI identified the merits and drawbacks of this method and compared procurement of supply in Delaware with what is being done in eight other states, some of which are in PJM and some of which are in nearby ISO-NE. LEI further discussed the strengths and weaknesses of alternative procurement methodologies, different competitive procurements formats, and also possible modifications to the FRS product and/or auction characteristics.

The purpose of this paper is not to make any specific recommendations. The paper however discusses certain avenues which could be further discussed and analyzed with the aim of crafting a long-term procurement approach that would satisfy the evaluation criteria discussed earlier in Section 4.1.

LEI is looking forward to discussing its findings with stakeholders during the technical workshop to be held in this proceeding. As such, we will elicit feedback on various options discussed in earlier sections, and in particular suggested topics for discussion presented in Section 4.5. LEI can then more fully assess the best options, and also reflect participants' views on the advantages and disadvantages of various alternatives. In the upcoming stakeholder workshop, LEI would seek feedback on questions, including but not limited to:

- How would you rank the four evaluation criteria presented in this report? Would you like to propose additional criteria?
- How do you define price stability? Is there a general limit in annual price variation which in your opinion, is deemed acceptable?
- How do you perceive a portfolio approach – where load is procured via a combination of SOS auctions, spot market purchases, long term contracts and building/buying generation?
- Should DPL build its own generation? What, in your opinion are the advantages and disadvantages?
- In your view, are there any perceived advantages of sealed bid process over the open auction/reverse auction format currently implemented in Delaware, particularly in light of lower participation observed in recent DPL auctions?
- What are your views on potential modification of the DPL auction such that the auction continues to have multiple rounds for separate blocks, but the same clearing price for all blocks?
- How do you feel about reducing or increasing the term (from 3 years to potentially 2 or 4 years), or combining different terms within the same auction?

- Do you think changing the timing of auctions (currently in winter months) would affect costs of supply and stability of prices?
- Would you like to see the block size revised? If yes, would you prefer it to be smaller or larger?
- Do you feel the risk premium is reduced if an energy-only product is procured, instead of the FRS product?
- Are there any other modifications in procurement process, auction design/format and product/auction characteristics that you would like to suggest?
- Do you think soliciting new transmission projects over the near term could lower the costs of supply (for SOS customers) in Delaware?

After the stakeholder workshop and in the final deliverables of this project, LEI will provide for a qualitative and quantitative assessment of the potential costs and benefits of the top suggestions that fall out of the stakeholder workshop and subsequent analysis.

## **6 Appendix – DPL’s Integrated Resource Planning (including historical & forecast load)**

As part of Delaware legislature’s 2006 House Bill 6, DPL is required to conduct Integrated Resource Planning. In its bi-annual filing of an IRP, DPL must evaluate all available supply options over a 10 year planning period to acquire sufficient, efficient and reliable resources over time to meet its customers’ needs at a minimal cost. Furthermore, the IRP must include DPL’s supply and demand forecast for the next ten years, and shall set forth the resource mix with which DPL proposes to meet its supply obligations for the same period. DPL’s latest IRP was filed on December 1<sup>st</sup>, 2014 and covers the 2015-2024 timeframe.

### **6.1 2014 IRP key findings**

DPL’s 2014 IRP finds that the combination of available generation resources and transmission import capability into the PJM DPL zone is forecasted to be sufficient under base case conditions to meet reliability requirements through 2024.

Over the 10 year planning horizon, the baseline RSCI SOS peak demand forecast is expected to grow from 903 MW in 2015 to 1,056 MW in 2024, which represents an average growth rate of 1.5% per annum. Over the same time horizon, the RSCI SOS energy usage is expected to grow by only 8 GWh to reach 2,874 GWh by 2024, which represents an average growth rate of slightly over 0.1% per annum.

Demand-Side Management (“DSM”) programs, which include Energy Efficiency (“EE”) programs, conservation programs and Demand Response (“DR”) programs, are forecasted to lower the peak demand for all DPL distribution customers by 188 MW (4.4% of the 4,287 MW forecasted peak load value) in 2015 and 313 MW (6.4% of the 4,861 MW forecasted value) by 2024. Similarly, the DSM impact on energy will be 344 GWh (4.2% of the 8,189 GWh forecasted energy value) in 2015 and growing to 801 GWh (9.7% of the 8,234 GWh forecasted value) by 2024.

As mentioned in earlier sections, DPL uses a competitive RFP process to procure the full requirements of customers eligible for a fixed price SOS. For RSCI customers, one third of the load is auctioned annually in blocks of about 50 MW in two separate auctions resulting in laddered 3-year contracts. The 2014 IRP does not include an analysis or discussion of alternate procurement strategies.

Finally, DPL manages a portfolio of renewable resources in order to comply with the State’s Renewable Energy Portfolio Standards Act (“REPSA”). To meet its RPS obligations through the 2015-2024 period, DPL expects that it will need additional RECs and Solar RECs (“SREC”) in excess of the currently contracted supply. Given the relatively low expected spot market prices, DPL intends to purchase a significant level of RECs and SRECs from the spot market to satisfy the RPS requirements.

## 6.2 Evaluation of alternative SOS service procurement processes under the IRP

Under the Electric Utility Retail Consumer Supply Act of 2006, the SOS provider has the ability to use a variety of resources in order to meet its electric supply requirements. While a minimum of 30% of the supply requirement must come from the competitive marketplace through bids or an auction process, the legislature has provided DPL the ability, subject to the approval of the Commission, to:

- enter into short- and long-term contracts for the procurement of power necessary to serve its customers;
- own and operate facilities for the generation of electric power;
- build generation and transmission facilities (subject to any other requirement in any other section of the Delaware Code regarding siting, etc.);
- make investment in Demand-Side resources; and
- take any other Commission-approved actions to diversify its retail load.

The legislation further states that DPL must, as part of its biannual IRP, explore in detail all reasonable short- and long-term procurement strategies. As part of its 2010 IRP,<sup>127</sup> DPL provided an analysis of 3 alternative scenarios to its reference supply scenario. The reference scenario represented the procurement methodology still in use today, which includes purchasing one third of the RSCI requirements annually under fixed price, 3-year FRS Agreements (“FSA”).

The three alternative scenarios built on the reference case by respectively adding to the supply portfolio:

1. A 135 MW gas-fired Combined-Cycle (“CC”) plant located in Delmarva South and online by 2014;
2. A 150 MW on-shore wind resource located in the PJM western region and online by 2014; and
3. A 150 MW off-shore wind purchase online by 2016

DPL asserted that the generation resources would not have energy output that is closely related to the shape of the customer loads, as they would be dispatched when economic to do so according to the price of gas (for the CC plant) or self-scheduled depending on wind. Therefore DPL’s analysis evaluated the generation resources as being added financially to the portfolio rather than displacing other purchases in it or serving SOS load directly.

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<sup>127</sup> Delmarva Power and Light Company, 2010 Integrated Resource Plan.

Interestingly, the scenario in which DPL's supply portfolio includes a 135 MW CC unit showed financial benefits with respect to the reference case in 2020 (DPL did not perform a full life-cycle analysis of the CC unit), even under the sensitivity analyses. The on-shore wind resource scenario proved more expensive than the CC unit scenario, but still indicated reduced costs relative to the reference scenario. The 2010 IRP presented the results from the alternative scenarios but did not mention any path forward to refine the studies or evaluate their merits.

Similarly, the 2012 IRP<sup>128</sup> included a sensitivity analysis to evaluate the addition of a hypothetical 300 MW CC generating facility in Delaware to DPL's FSA portfolio beginning in 2017. In the IRP, DPL asserted that inclusion of the new CC in the FSA supply portfolio drives down both the average cost and risk range in each future years. DPL further studied the inclusion of new offshore wind resources and new utility scale PV generation in Delaware but concluded the neither project would be economically useful to the reference supply portfolio and would add significantly to the cost of supply.

Once again the 2012 IRP presented the results from the alternative scenarios for SOS supply procurement but did not include any further studies to explore these alternative options. In its response to comments filed with the Commission in the IRP docket, DPL asserts that the need for the facility is partly negated for the near future because of a significant amount of new generation capacity coming on line in the PJM DPL zone within the next few years.

The 2014 IRP<sup>129</sup> did not include any analysis of alternatives to the current procurement approach of contracting for FRS through RFPs.

Interestingly, although the 2010 and 2012 IRPs included analysis of alternative procurement scenarios where a new resource would be added to the supply portfolio, procurement of FRS remains at the core of DPL's supply procurement strategy in all these scenarios. In the 2010, 2012 or 2014 IRP, DPL did not evaluate the benefits or lack thereof of procuring alternative products such as fixed-block energy purchases, long-term contracts for new or existing resources, or procuring energy, capacity and ancillary services directly from the PJM Spot markets, which could include hedging strategies to minimize price volatility.

### **6.3 Historical energy & capacity sales**

Global energy sales by DPL in Delaware have generally declined over the past 10 years, from 9,851 GWh in 2003 to 8,285 GWh in 2013, at an average annual rate of -1.7%. The decline has been most significant for the industrial class, with an average annual decline of -6.4%. Prior to 2006, total residential sales grew in excess of 2% annually. Since the end of the recession, however, residential sales growth has slowed and even declined, with growth rates in the last 3 years of 0.9% for 2011, -1.7% for 2012 and 1.5% for 2013.

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<sup>128</sup> DPL, 2012 Integrated Resource Plan.

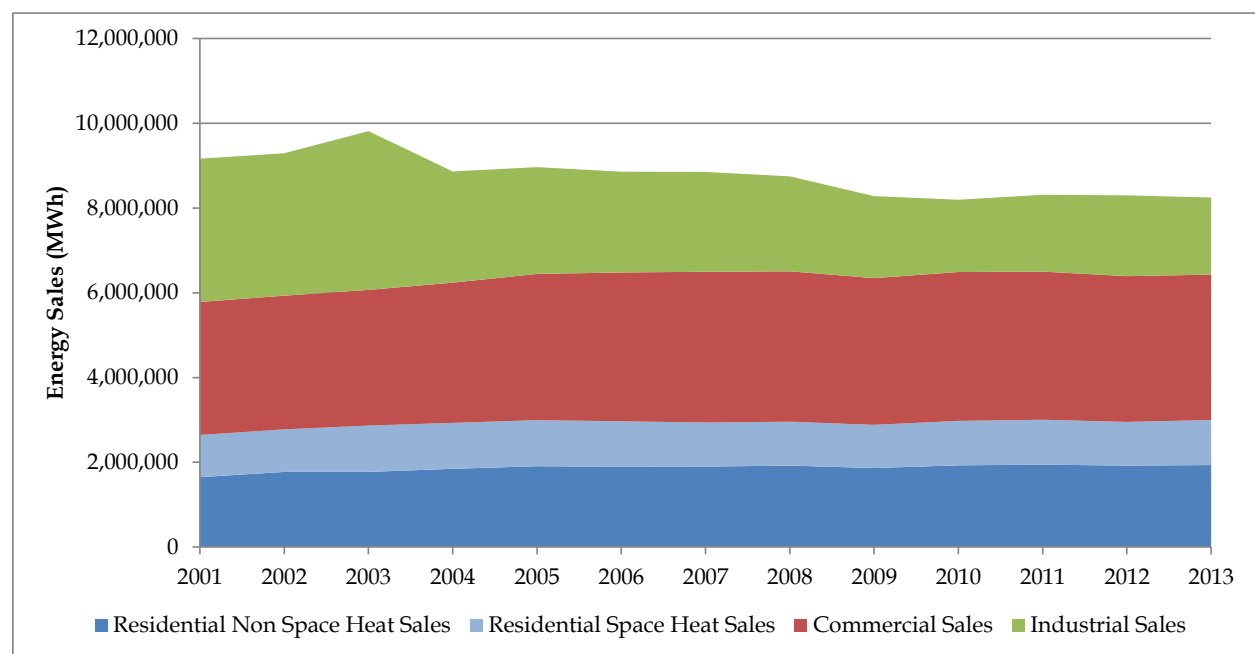
<sup>129</sup> DPL, 2014 Integrated Resource Plan.

In the same timeframe (2003-2013), global energy usage within the PJM footprint grew at an average of 0.2% per year.

Figure 27 illustrates DPL energy sales within Delaware from 2001 through 2013 in 4 revenue classes of sales:

- Residential Non-Space Heating Electric Sales;
- Residential Space Heating Electric Sales;
- Commercial Electric Sales; and
- Industrial Electric Sales.

**Figure 27. DPL Delaware historical energy sales by revenues classes**



Source: Delmarva Power, 2014 IRP, Appendix 4

## 6.4 Forecasted energy and capacity needs

For the IRP, DPL prepares a “baseline” forecast for energy and peak demand, which is derived from econometric modeling techniques. The expected impacts from DSM programs, calculated separately from the econometric baseline forecast, are subtracted from the baseline forecast to create the reference case forecast.

Energy and peak demand forecasts for the entire Delaware load within the DPL franchise area are further disaggregated by customer category and SOS/non-SOS customers.

### 6.4.1 Baseline forecast

There are several inputs to the electricity demand forecasting model:

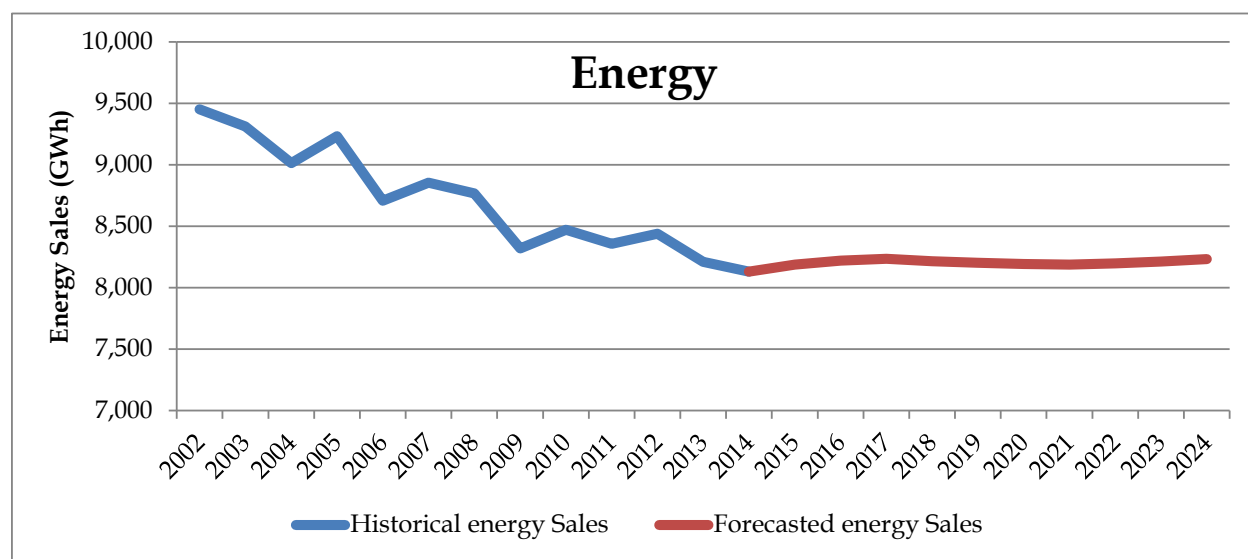
- forecasts of service territory economic activity;
- forecast of number of customers;
- effects of normalized weather conditions on demand; and
- future real prices for electricity.

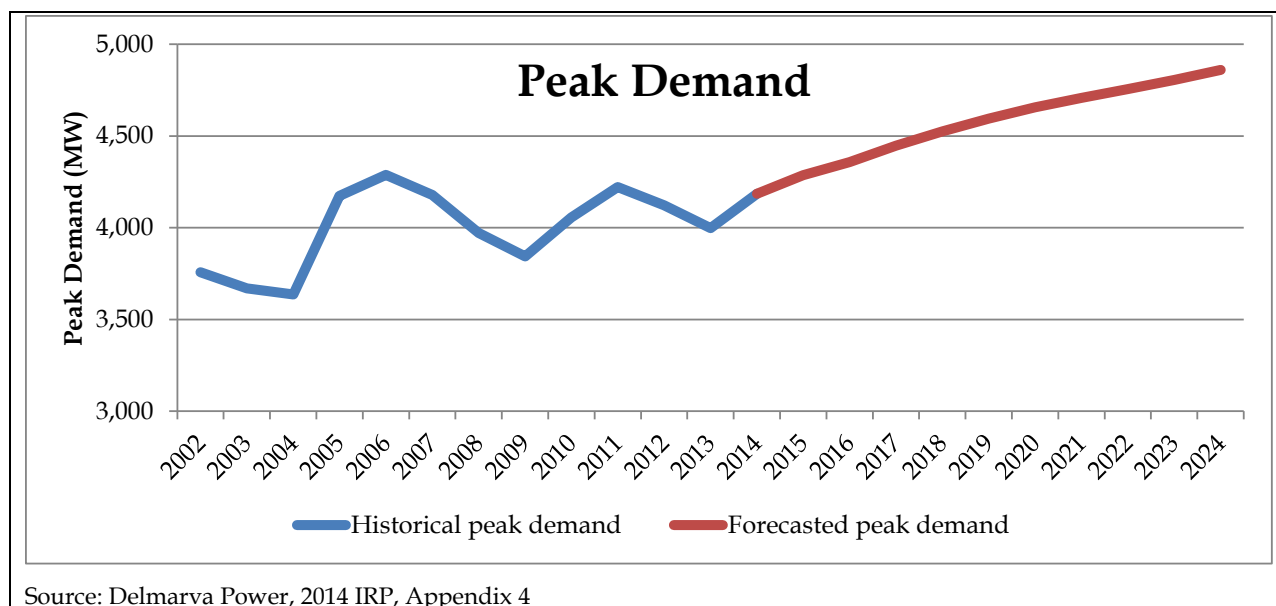
The forecasts are weather normalized, a process that adjusts actual sales/peaks to what they would have been if the actual degree days had been at their historical normal level. This is based on the past relationship between actual degree days and actual sales/peaks.

The DPL forecasting methodology is similar to the methodology employed by PJM for its own forecast, where economic drivers and normalized weather data are the basis of the peak demand and energy forecasts.

Figure 28 illustrates the 10-year baseline energy and capacity forecast for the entire DPL Delaware load, with the historical values shown as a basis for comparison. Over the 10 year planning horizon, load growth is expected to vary between negative 0.2% and positive 0.2% per annum for annual energy sales hovering around 8.2 TWh. The peak demand forecast, however, is expected to show continuous growth with an average growth of 1.9% over the next 5 years and an average of 1.1% thereafter. The baseline weather-normalized DPL Delaware peak demand is expected to reach 4,861 MW by 2024.

**Figure 28. DPL Delaware historical and forecasted energy requirement and peak demand**



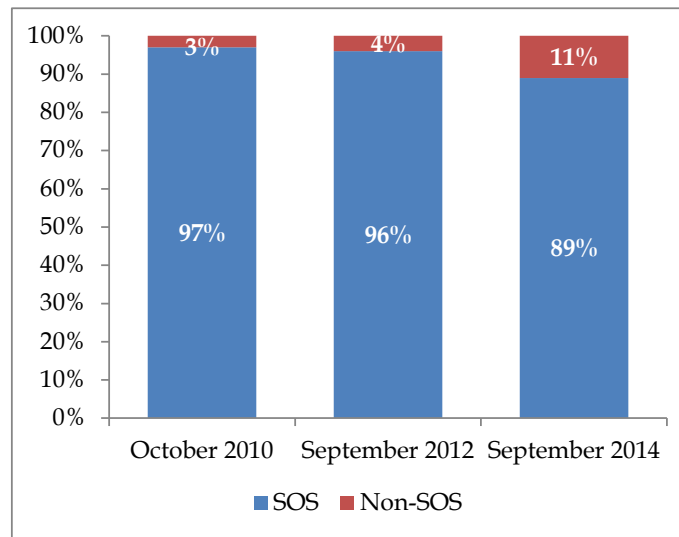


In order to disaggregate the forecasts to the customer class level, forecasters sum the relevant rate class peaks into the classes required for IRP modeling. After calculating the IRP class contribution to the 2013 DPL Delaware peak, class forecasts are calculated as a constant share of the DPL Delaware forecast over the forecast horizon. This results in a forecast where the share of each class (when compared to the global energy and peak load values) does not evolve over the forecasting horizon, implying that the growth rate is similar for each classes of consumers.

Furthermore, as shown in Figure 29, the percentage of residential customers opting competitive retail suppliers has increased in recent years from 3% (as of October 2010) to 11% (as of September 2014). However, historical data does not show a definite trend over time one way or another. As is pointed out in Appendix 4 to the IRP, if competitive suppliers consistently offered better deals, the share of consumers switching would tend towards 100%.

The forecast assumes that shares of customers opting for competitive suppliers for the overall energy and demand forecasts will remain constant at their current level over the forecasting horizon. As such, the 2014 IRP forecast assumes the level of residential customers opting for SOS is fixed at the proportion as in September 2014. Therefore, the total residential DPL Delaware load is assumed to be divided with 89% of customers keeping the SOS and 11% of customers opting for competitive suppliers.

**Figure 29. Historical percentage of DPL residential customers supplied under the SOS offering**

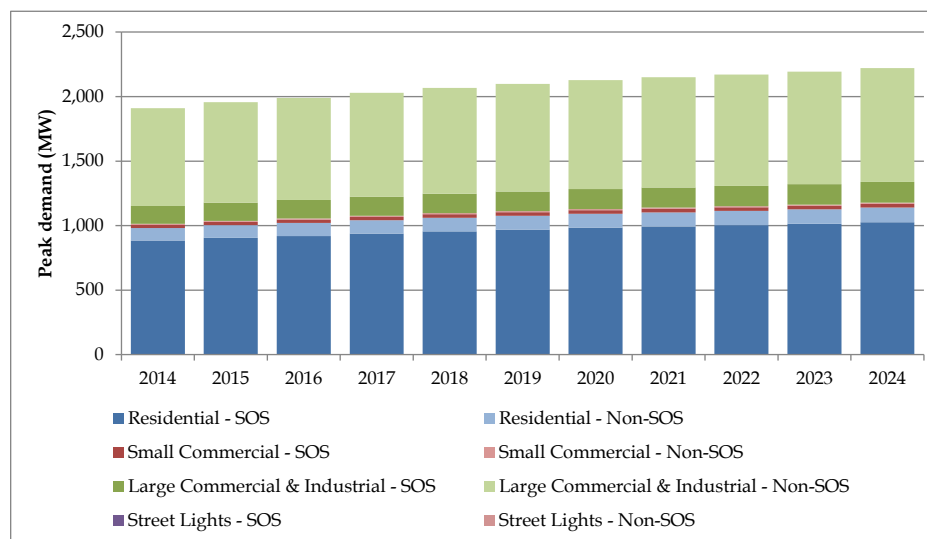


Source: Delmarva Power, 2010, 2012 & 2014 IRP

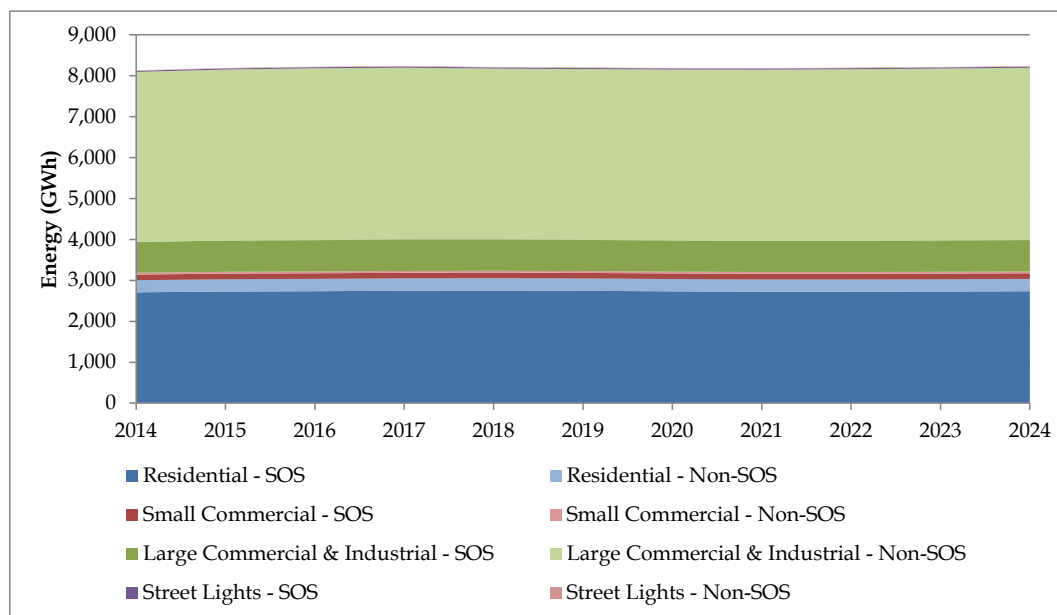
However, the percentage of residential customers opting for competitive retail suppliers has evolved since 2010 and is likely to do so in the future. This constitutes a risk element for potential SOS suppliers as the quantity of load they must serve will vary according to the percentage of consumers opting for competitive retail suppliers.

Figure 30 and Figure 31 present the baseline 10 year peak demand and energy forecast for the DPL Delaware service territory disaggregated by customer class and by SOS/non-SOS customers. The focus of the LEI analysis is on the Residential and Small Commercial & Industrial (RSCI) customers who elect SOS, in which category the residential load represents around 95% of the energy requirement and 97% of the peak demand.

**Figure 30. Baseline peak demand forecast by rate class for the DPL Delaware service territory**



**Figure 31. Baseline energy forecast by rate class for the DPL Delaware service territory**



Source: Delmarva Power, 2014 IRP, Appendix 4

Over the 10 year planning horizon, the baseline RSCI SOS peak demand forecast is expected to grow from 903 MW in 2015 to 1,056 MW in 2024, which represents an average growth rate of 1.5% per annum. Over the same horizon, the RSCI SOS energy usage is expected to grow by only 8 GWh to reach 2,874 GWh by 2024, which represents an average growth rate of slightly over 0.1% per annum.

#### 6.4.2 Impact of Demand-Side Management & Energy Efficiency

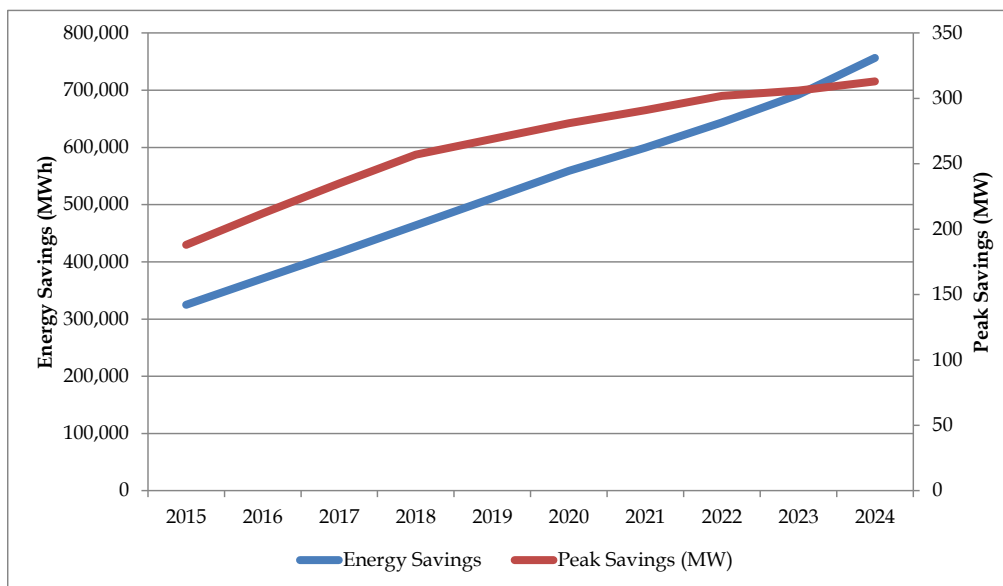
DSM programs include Energy Efficiency (“EE”) programs, conservation programs and Demand Response (“DR”) programs. These resources support compliance with the Delaware Energy Conservation & Efficiency Act of 2009.

The act created an Energy Efficiency Resource Standard (“EERS”) requiring each Affected Electric Provider<sup>130</sup> to achieve, at a minimum, energy savings equivalent to 15% of the Provider’s 2007 electricity consumption, and a coincident peak demand reduction equivalent to 15% of the Provider’s 2007 peak by 2015. The 2015 reduction goals for DPL are 284 MW for peak electricity demand and 1,329 GWh for annual energy consumption. In the absence of further mandate beyond 2015, DPL assumes in the 2014 IRP that the reduction goal for each successive year thereafter is equal to 15% of the 2007 consumption and peak demand minus each following year’s otherwise forecasted incremental consumption and peak demand.

<sup>130</sup> An Affected Electric Energy Provider is defined as an electric distribution company, rural electric cooperative or municipal electric company serving energy customers in Delaware.

While DPL is responsible for implementing Demand Response programs, the Sustainable Energy Utility (“SEU”) is a non-profit organization responsible for implementing EE and conservation programs in Delaware.

**Figure 32. Forecasted DSM Energy and Capacity Savings**



Source: Delmarva Power, 2014 IRP

Recently, the Delaware legislature passed SB 150 that permits DPL, in conjunction with the SEU, to offer EE programs. However, since the new rules and procedures allowing DPL to offer programs and recover costs are not yet established, the current IRP conservatively assumes the SEU will be the sole provider of EE programs for the IRP planning period.

Figure 32 illustrates the forecasted DSM energy and peak demand savings in Delaware for the 2015-2024 period. It is noteworthy that both the energy and peak demand reductions fall short of the 2015 goal.

DSM programs are forecasted to lower the peak demand for all DPL distribution customers by 188 MW (4.4% of the 4,287 MW forecasted peak load value) in 2015 and 313 MW (6.4% of the 4,861 MW forecasted value) by 2024. Similarly, the DSM impact on energy will be 344 GWh (4.2% of the 8,189 GWh forecasted energy value) in 2015 and growing to 801 GWh (9.7% of the 8,234 GWh forecasted value) by 2024.

#### 6.4.3 Reference Case Forecast

For the purpose of procuring supply to cover the SOS customer energy requirements and to meet the RPS, the expected energy savings from DSM programs need to be subtracted from the Baseline Forecast for SOS customer energy. The resulting Reference Case Forecast provides the energy basis for determining the annual amount of RECs needed for RPS compliance and the

amount of annual energy expected to be procured through the Commission approved auction process for SOS customers.

Furthermore, potential suppliers will rely on the reference case forecast as well as other information Delmarva supplies to interested bidders to evaluate the load they will be expected to serve should they win any block in the auction for SOS customers.

**Figure 33. Reference case energy forecast for SOS customers for the DPL Delaware service territory**

